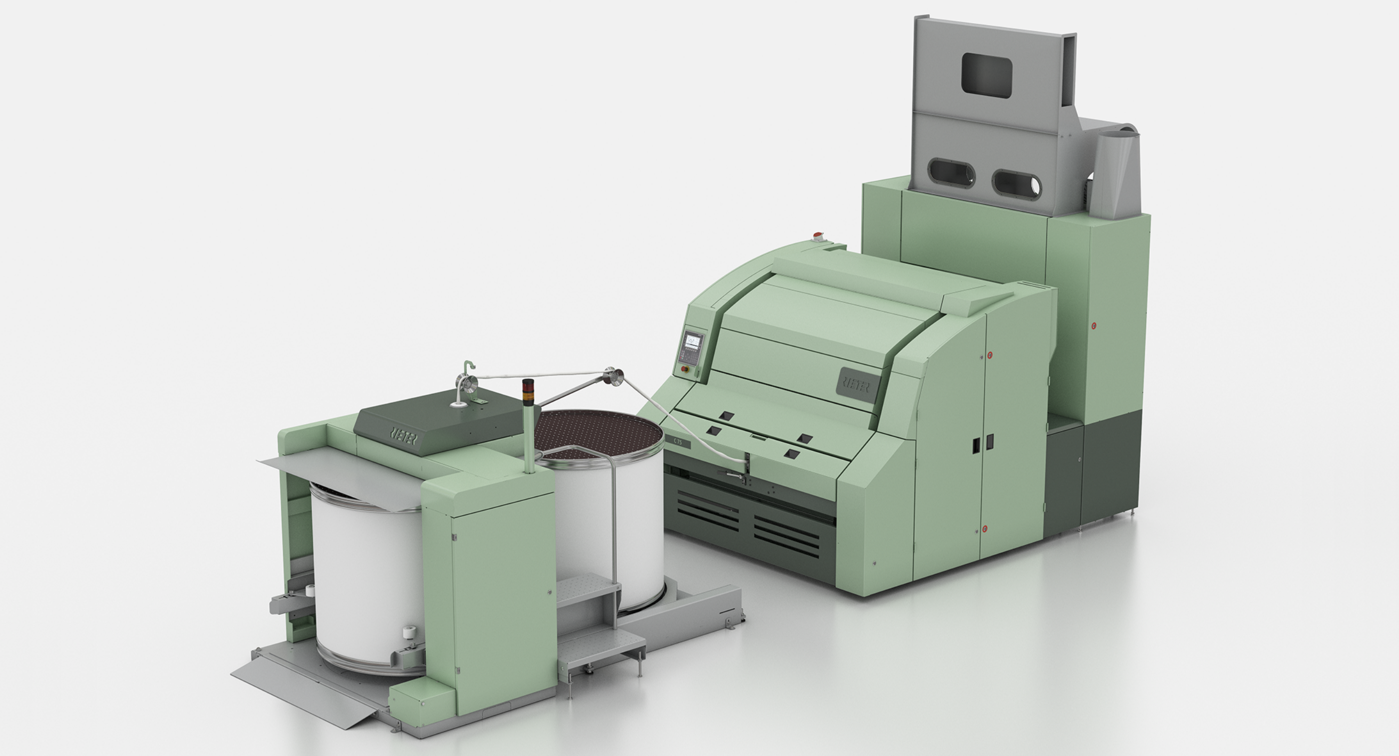

Operation Manual

CBA Card C 75

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1 Introduction

This chapter contains the basic information about this manual. This chapter contains the information about the used conventions and the CE-certificate for the machine.

1.1 Used Conventions

The writing conventions that are used in this manual are as follows:

Writing Convention		
Name	**Example**	**Description**
Section information	Chapter 1, 1.1, 1.1.1	The chapter numbers are given in a sequence. The chapter number starts with the number 1.
Figure number	*Figure 1*	The figure numbers are given in a sequence. The figure number starts with the number 1.
Callout	1	The elements in the figure are identified with position numbers.

1.2 Intended User

Only Rieter-approved personnel are permitted to operate the machine and to do the maintenance work and the repair work at the machine. The personnel must know the content of this manual and how to find the related information.

More information about the intended user is given in chapter 2 of this manual.

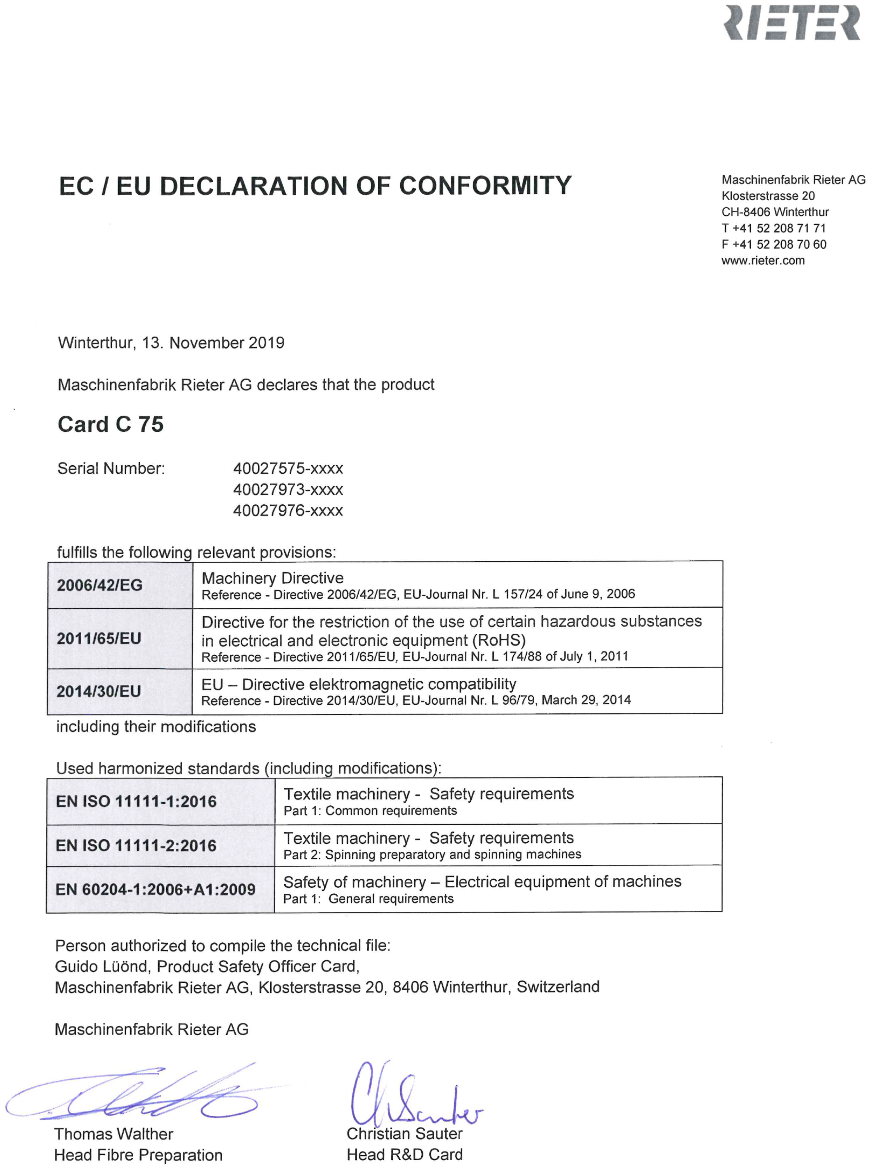
1.3 About This Manual

The manual is a part of the machine and is to be kept at the machine. The instructions from the third-party suppliers are also to be kept at the machine.

1.4 Identification of the Operation Manual

The operating manual can be uniquely identified via the material number and the editorial version. The identification characteristics are specified in the legal notice.

1.5 CE-Certificates and Standards



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EC / EU DECLARATION OF CONFORMITY

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Winterthur, 13. November 2019

Maschinenfabrik Rieter AG declares that the product

Card C 75

Serial Number: 40027575-xxxx
40027973-xxxx
40027976-xxxx

fulfills the following relevant provisions:

2006/42/EG	Machinery Directive Reference - Directive 2006/42/EG, EU-Journal Nr. L 157/24 of June 9, 2006
2011/65/EU	Directive for the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Reference - Directive 2011/65/EU, EU-Journal Nr. L 174/88 of July 1, 2011
2014/30/EU	EU – Directive elektromagnetic compatibility Reference - Directive 2014/30/EU, EU-Journal Nr. L 96/79, March 29, 2014

including their modifications

Used harmonized standards (including modifications):

EN ISO 11111-1:2016	Textile machinery - Safety requirements Part 1: Common requirements
EN ISO 11111-2:2016	Textile machinery - Safety requirements Part 2: Spinning preparatory and spinning machines
EN 60204-1:2006+A1:2009	Safety of machinery – Electrical equipment of machines Part 1: General requirements

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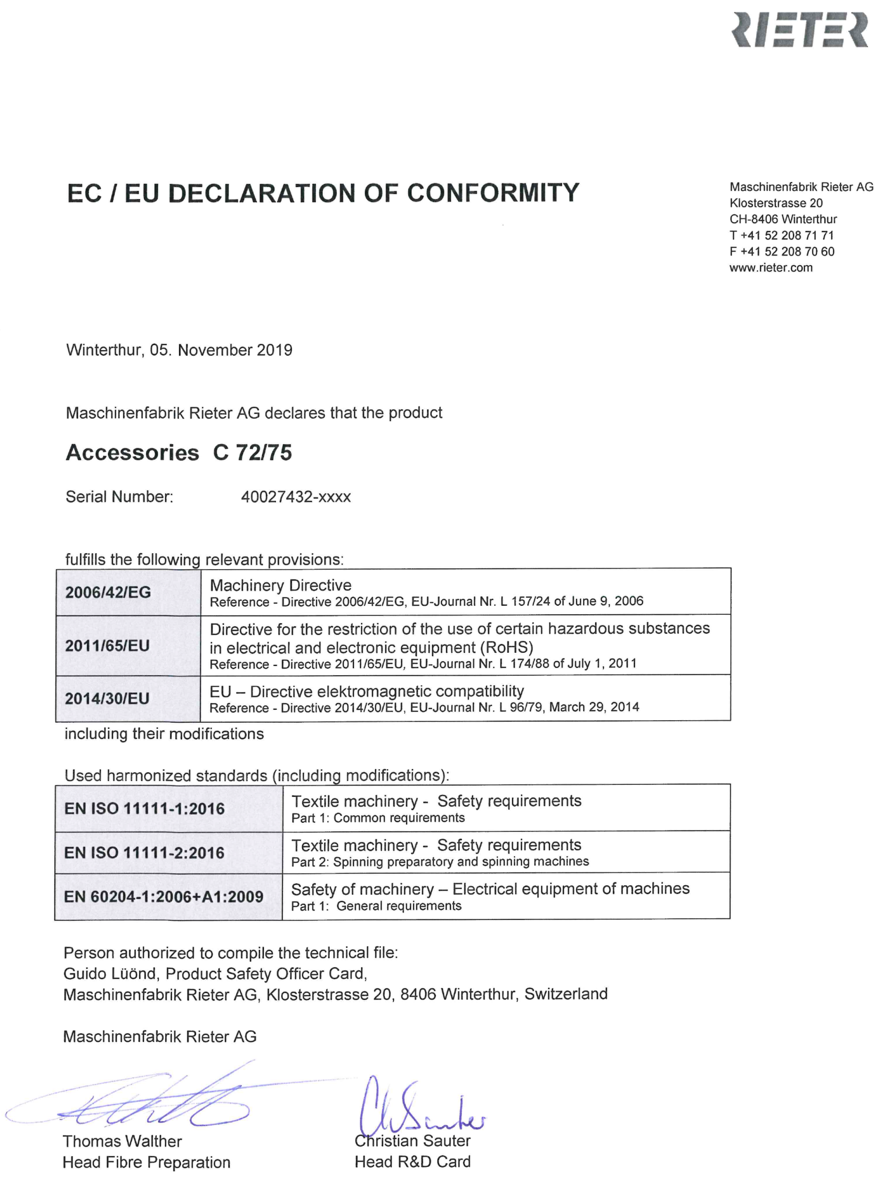
Thomas Walther
Head Fibre Preparation

Christian Sauter
Head R&D Card

Figure 1: EC certificate card C 75



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Winterthur, 05. November 2019

Maschinenfabrik Rieter AG declares that the product

Accessories C 72/75

Serial Number: 40027432-xxxx

fulfills the following relevant provisions:

2006/42/EG	Machinery Directive Reference - Directive 2006/42/EG, EU-Journal Nr. L 157/24 of June 9, 2006
2011/65/EU	Directive for the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Reference - Directive 2011/65/EU, EU-Journal Nr. L 174/88 of July 1, 2011
2014/30/EU	EU – Directive elektromagnetic compatibility Reference - Directive 2014/30/EU, EU-Journal Nr. L 96/79, March 29, 2014

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Figure 2: EC certificate accessories C 75_C72

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2 Safety

This chapter contains the information about the machine safety. This chapter contains the information about the location of the safety labels, the safety equipment, and the danger zones in the machine and around the machine. This chapter contains information about the intended user.

2.1 Qualifications of Personnel

The personnel that are not approved do NOT know the safety instruction given in the operation manual. To prevent possible risk or danger the owner responsibilities are that follow:

- Let only the approved personnel to do the machine operation, the maintenance work, and the repair work given in the operation manual.
- The owner must ensure that the country and local rules are understood and adequate measures are taken. For example, the personal protective equipment should be correctly used.
- The owner must specify and announce the responsibility for activities.
- Give the machine key and password only to the approved personnel.

2.2 Availability of the Operation Manual

The owner must make sure that the personnel read and understand the operation manual correctly. The owner must give copies of the operation manual to the operation personnel and to the maintenance personnel. The personnel must have easy and quick access to the operation manual, for safe and effective working.

2.3 Safety Messages

The safety messages contain a signal word, a safety symbol, and the safety instructions.

⚠ **DANGER**

If the safety instructions are NOT obeyed, the situation causes death or irreversible injuries.

⚠ **WARNING**

If the safety instructions are NOT obeyed, the situation can cause death or injuries.

CAUTION

If the safety instructions are NOT obeyed, the situation can cause small injuries.

Structure of the Safety Messages

Each safety message contains the elements that follow:

- Safety symbol
- Signal word
- Type and source of the danger
- Consequences of the danger if not prevented
- Instructions to prevent the danger

2.4 Property Damage Notice

This signal word NOTICE shows the information about the damage of the machine or close objects. If the NOTICE information is not obeyed, damage to the related property occurs.

NOTICE

This signal word shows that the user must obey the given procedure or message to prevent a property damage.

2.5 Technical Condition of the Machine

If the machine is operated while in a defective condition, the defective condition has an effect on the safety, the correct function, and the availability.

- Operate the machine, only when it is in fault free condition.
- Obey the maintenance schedule.
- Use only original spare parts (specified in the spare parts catalog).
- If the operating behavior of the machine changes, examine the machine for faults.
- Correct the faults immediately.
- Do not make unauthorized changes to the machine.

2.6 Occupational Safety

This section contains information about how to create safe work environment and how to deal with personal injury.

2.6.1 Slipping or Tripping or Falling Because of the Slippery Surface

⚠ **CAUTION**

Slippery surface!

Personal injury

- ▶ Wear a safety shoes.
- ▶ Wear a safety harness.

⚠ **WARNING**

Falling from the ladder!

Personal injury

- ▶ Keep the floor clean from grease, oil, or other contamination.
- ▶ Examine the contamination of the floor when using a ladder.

To prevent the personnel from the slipping, tripping and falling, obey the instruction that follows:

- – Keep the machine floor, the handles, the steps, the platforms, and the ladders clean from the grease, oil, and other contamination.
- – Do not climb on the machine.
- – Use the safety shoes.
- – Examine the floor condition when using a ladder.

The owner must ensure that the country and local rules are understood and adequate measures are taken.

2.6.2 Safe Working at the Machine When the Machine Is Off

⚠ **WARNING**

Moving machine components!

Risk of hand injury

- ▶ Do NOT touch the machine components that move.
- ▶ Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- ▶ When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

This danger exists in the following situations:

- – The main switch has been switched off before the machine has come to a standstill.
- – The energy accumulated in the flywheel mass continues to drive the machine.

- Parts of the machine are being moved by hand.
- Parts of the machine are being driven by external energy. An air flow for example.

If the machine starts unexpectedly, the personnel working at the machine can get injured. Thus, before starting work at the machine parts (such as maintenance work and repair work), always make sure that the main switch is padlocked.

2.6.3 Tasks at the Machine When the Main Switch Is Set to the Position ON

⚠ **WARNING**

Moving machine parts!

Injury because of moving machine parts.

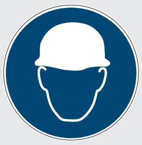
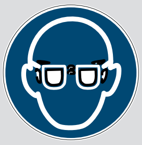
- ▶ When the main switch is ON, the operator must do the task carefully because the machine parts are in the operation.
- ▶ The operator must examine the operation status of the machine.

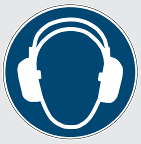
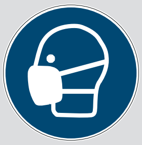
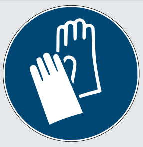
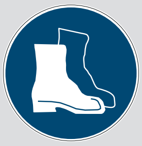
The below tasks are done at the machine when the main switch is set to the position ON and the machine is in operation. Thus, the operator must be careful when doing the below tasks.

- Clothing maintenance
- Starting the machine without material
- Starting the machine with material
- Correcting the faults

2.6.4 Personal Protective Equipment

When the approved personnel operate the machine, install the machine or do the maintenance work at the machine, the personal protective equipment that follows is to be used:

Symbol	Information
	Safety helmet Use a safety helmet to prevent head injuries. Refer to the standard EN 397:2012+A1:2012.
	Eye protection Use an eye protection to prevent the eyes from particles that occur during the work at the machine. Refer to the standard EN ISO 166.

Symbol	Information
	Ear protection Use an ear protection to prevent the ears from high-volume noise. Refer to the standard EN 352.
	Respiratory protection Use a respiratory protection to prevent the respiratory tract from dust. Refer to the standard EN 149:2001+A1:2009.
	Safety gloves Use cut-resistant safety gloves that have a flexible, impact-resistant layer to prevent the hands from cut injuries. Refer to the standard EN 388:2003. Use chemical-resistant safety gloves to prevent the hands from injuries by chemical materials. Refer to the standard EN 374. Use heat-resistant safety gloves to prevent the hands from burns. Refer to the standard EN ISO 407.
	Safety shoes Use safety shoes to prevent the feet from injuries and the personnel from electric shocks. Refer to the standard EN ISO 20345 (category S3).

2.6.5 Instruction of Work Clothes

The correct work clothes decrease the danger of the accidents. When working at the machine, obey the following points:

- Cover hair if the hair is long.
- Always wear a helmet.
- Do not wear the rings.
- Do not wear the wristwatches.
- Do not wear the below types of cloths while working on the machine.
  - Loose cloths
  - Scarves
  - Ties
  - Cloths with wide open sleeves etc.

2.6.6 Personal Injury

If an accident occurs, do the first-aid treatment. Make a call to the local emergency center.

Below is the example of information which are important when reporting the accident:

- Who makes the call?
- What occurred?
- Type of injury?
- When?
- Where?
- How many persons have an injury?
- Do other dangers occur?

2.7 Product Safety

This chapter contains the information about the product safety.

2.7.1 Safety Symbols at the Machine

The safety symbols identify the danger zones at the machine. If the safety symbols are not at the machine, the possible risk of injuries to the personnel is not possible to be identified.

To see the safety symbols easily, the safety symbols must always be on the surface of the machine. The safety symbols are not to be removed from the machine. No cover must be on the safety symbols.

Safety symbols that are not discernible must be replaced.

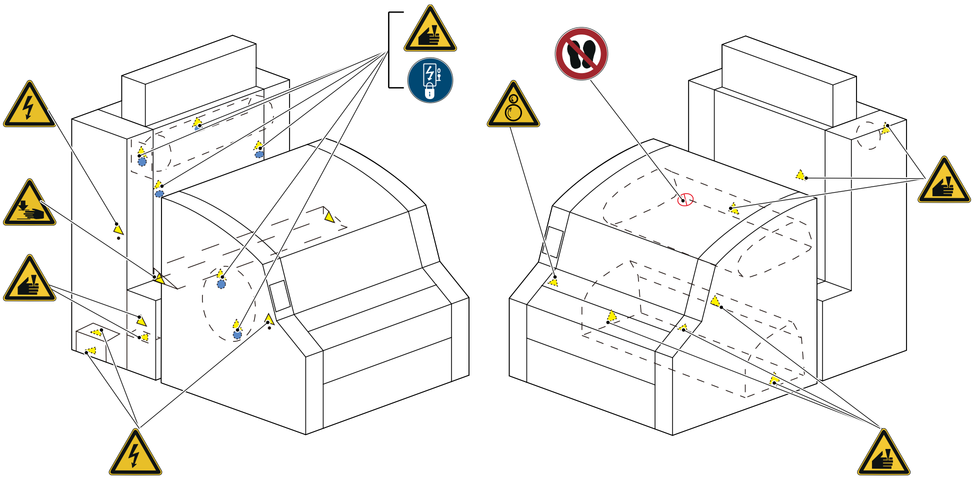
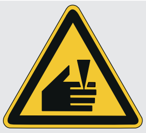
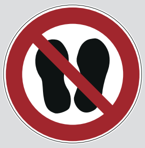
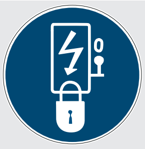
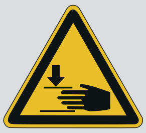
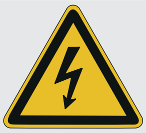
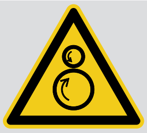


Figure 3: Safety symbols

Safety Symbol	Description	Location
	Hand injuries!	– At the cover behind the chute area – At the outside below the card chute – At the cover behind the cleaning unit of the card flats – At the cover above the doffer area – At the delivery unit. See *Danger Zones of the Card* ▶ *30*
	Do NOT stand on the machine!	– At the card flat cover
	Padlock the main switch!	– At the card chute wall – At the front covers and the rear covers of the opening roller – At the cylinder cover that is behind the control cabinet
	Squeeze of hands!	– At the left side and right side of the feed channel complete – At the left side and right side of the licker-in unit
	Electric shock!	– At the control cabinet door – At the left side door of the card chute – At the inner side of the card chute
	Injury by the counter turning rollers!	– At the left side of the delivery unit

2.7.2 Danger Zones at the Machine

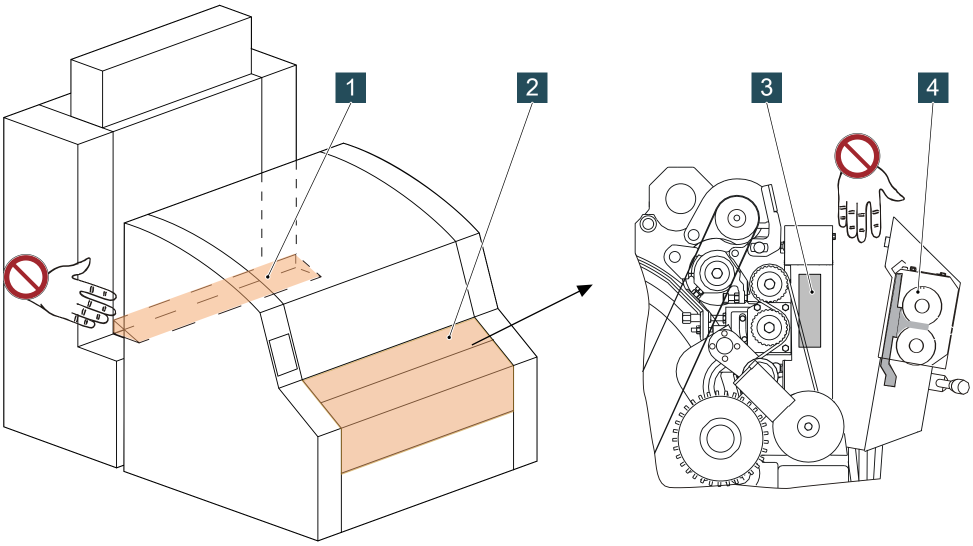


Figure 4: Danger zone

During the normal production of the machine, do not touch the danger zones that follow:

- Feed channel complete 1
- Delivery unit 2

When delivery unit 2 opens, do not touch the cross apron 3 and the disk rollers 4.

2.7.3 Doors and Hoods

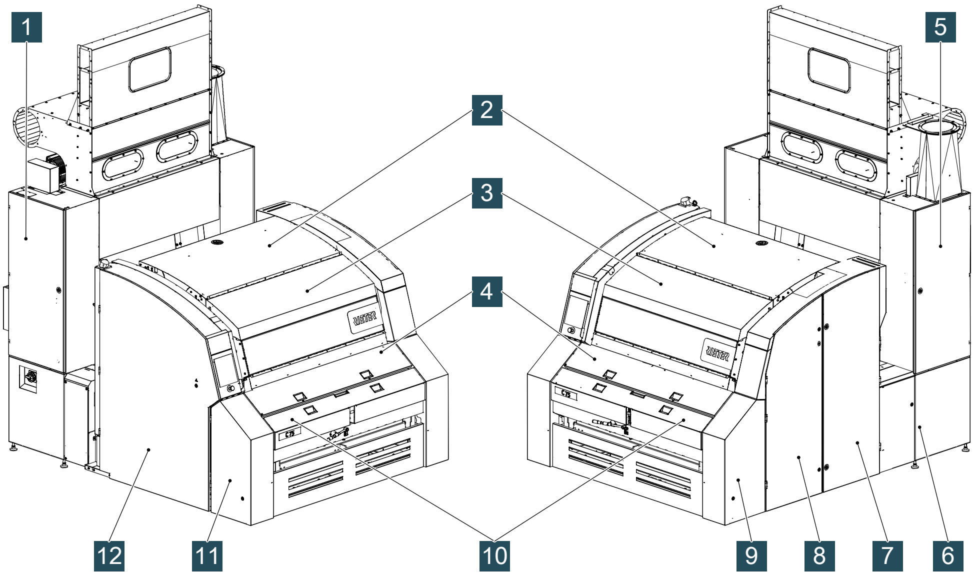


Figure 5: Doors and hoods

1	Left side door of the card chute	2	Rear hood
3	Front hood	4	Clearer roller cover
5	Right side door of the card chute	6	Swivel door
7	Right side door	8	Right side door
9	Right side door of the delivery unit	10	Front cover
11	Left side door of the delivery unit	12	Electric cabinet door

Doors

The machine has doors and hooks with locks. The twist locks prevent that the doors and the hoods are opened accidentally. The operator can open and close the doors with a triangular socket wrench.

The doors 1, 5, 6, 7, 8, 9, 11, and 12 have locks.

Hoods and Covers

The operator can open the rear hood 2 and front hood 3. Gas pressure springs at the hood 3 hold the hoods in the open position.

The operator can open the clearer roller cover 4 and the front cover 10 to get access to the delivery unit.

2.7.3.1 Machine Covers

The covers are safety devices and tightly installed on the machine with screws. Only remove machine covers when the machine is at a standstill, and when the main switch is set to position OFF and padlocked.

Do not remove the padlock on the main switch until all the safety devices have been re-installed.

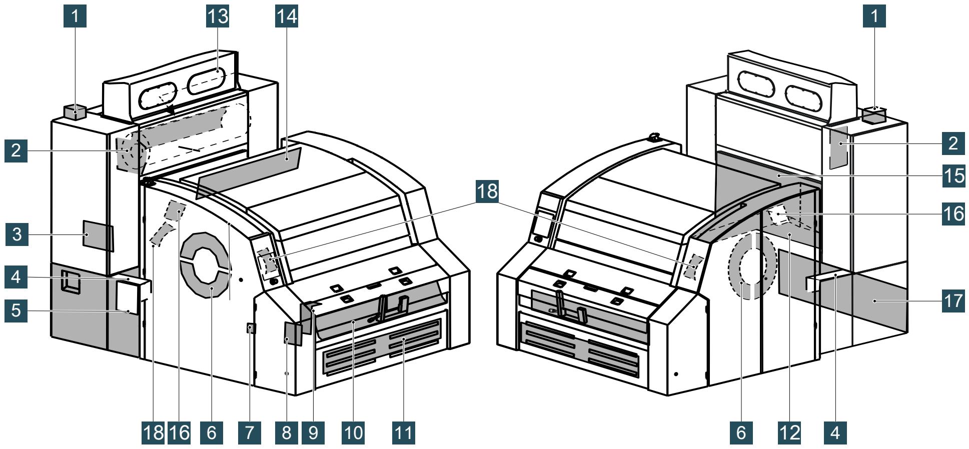


Figure 6: Covers on the machine

1	Cover for the opening and the feed roller drives	2	Cover for the opening and the feed roller drive pulleys
3	Cover for the drive for the delivery rollers	4	Covers for the licker-in section
5	Side cover for the licker-in section	6	Covers for the storage section of the cylinder
7	Cover for the doffer section	8	Cover for drive section of disk rollers
9	Cover for clearer roller drive	10	Cover for access to take-off roller
11	Cover for the doffing section	12	Hood for the card-flat cleaning section
13	Cover for the opening roller section on the rear side of the card chute	14	Cover for the card-flat cleaning device
15	Card chute wall	16	Cover for the openings of the card flats unit
17	Cover for access to the licker-in section	18	Red covers at the card-flat deflection section

2.7.4 Safety Devices of the Machine

If the safety devices do not operate correctly, the personnel are in danger. Before the machine is operated, all safety devices must operate correctly.

2.7.4.1 Information on the Safety Circuit

Orientation This section contains the information about the functions of the components of the safety circuit.

The safety circuit has sensors, operating elements, and actuators.

The safety circuit is used for the protection of personnel, environment, and equipment.

The electrical system documentation is referred to install the safety circuits on the machine.

The parts of the safety circuit are as follows:

- Emergency stop buttons
- Safety limit switches on doors, hoods
- Safety relays
- Frequency converters with integrated safety functions
- Controllers with integrated safety functions

Overview of the Possible Safety Functions	
Safety Function	**Description**
STO - safe torque off	The tightening torque is safely stopped with this function.
SOS - safe operation stop	The machine is safely stopped with this function.
SBC - safe brake control	The safe brakes are applied with this function.
SS1 - safe stop 1	The operation is safely stopped with this function.
SS2 – safe stop 2	The operation is safely stopped with this function.
SSM – safe speed monitor	The speed is safely monitored with this function.
SLS – safe limited speed	The speed limit is safe with this function.
SDI – safe direction	The necessary direction is moved safely with this.

Safe Torque Off (STO) in accordance with EN 60204-1

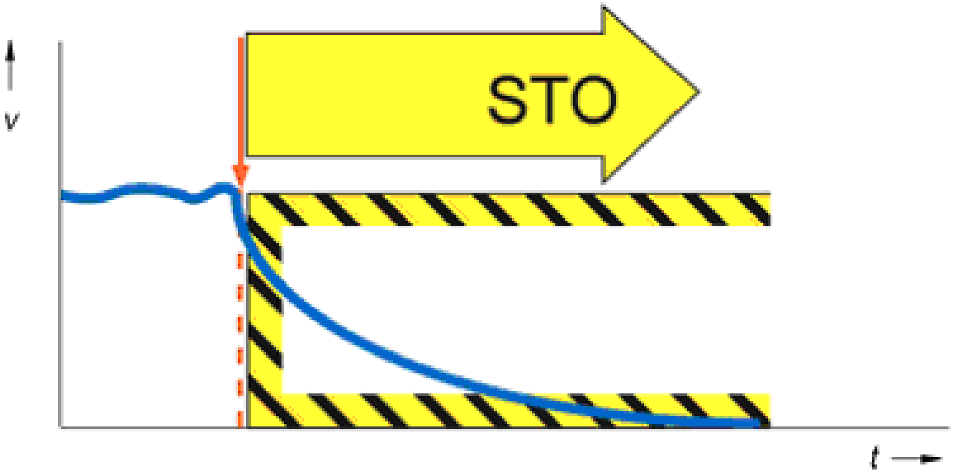


Figure 7: Safe torque off

The STO function ensures that the torque-generating energy can no longer act on a motor. This prevents an unexpected start-up of the motor. The controller of the drive monitors this condition.

Safety Instructions for Maintenance

- The drives with integrated functional safety have a limited service life.

- The elements in the safety circuit are not open to access, and the changes in the safety circuit are not permitted.
- The defective safety elements are to be replaced with the full work units only.
- The safety elements are only to be repaired by the manufacturer or by an approved organization (Rieter Repair Station).
- The necessary measures are given in the chapter Maintenance in the operation manual. To make sure of the correct working of the safety functions, these measures are necessary to be done.

After Replacing a Safety Element

1. Do the functions test of the safety relay. See *Doing the Function Test of the Safety Relay* ▶ *172*
2. In the electrical documentation, record the replacement and the function of the safety element in Protocol Safety-Circuit-Loop.

Exclusion of Liability

Not approved opening of the safety devices and changes in the safety devices, contrary to the standards given in the operation manual (for example, interchanges the printed circuit boards (PCBs) between converters, removal of PCBs) is possible to cause injuries to personnel or damage the material.

Not approved opening of the safety devices and changes in the safety devices result in the loss of all warranty claims.

Rieter Machine Works Ltd. rejects the liability of loss and to give compensation for damage if the changes that are not approved are made to the safety devices.

The customer is fully responsible for the cost caused in unauthorized changes of the safety device.

Interventions on a safety-related device, which are not given in the operation manual and are done by not approved personnel, and have the result that the safety functions of the device and the machine do not obey with the statutory rules.

To make sure that the unauthorized opening, changing, or repair of the safety devices are prevented. The suppliers know all the data of the safety elements, such as serial numbers of the converters and the related serial numbers of the integrated elements.

2.7.4.2 Safety Devices at the Doors

The defective safety switches must be replaced.

After replacement, a function test of the safety device should be done. See *Doing the Function Test of the Safety Relay* ▶ *172*

At the right side door, the red ring symbol 3 is attached to the door lock. If the door is opened in operation, the machine will stop.

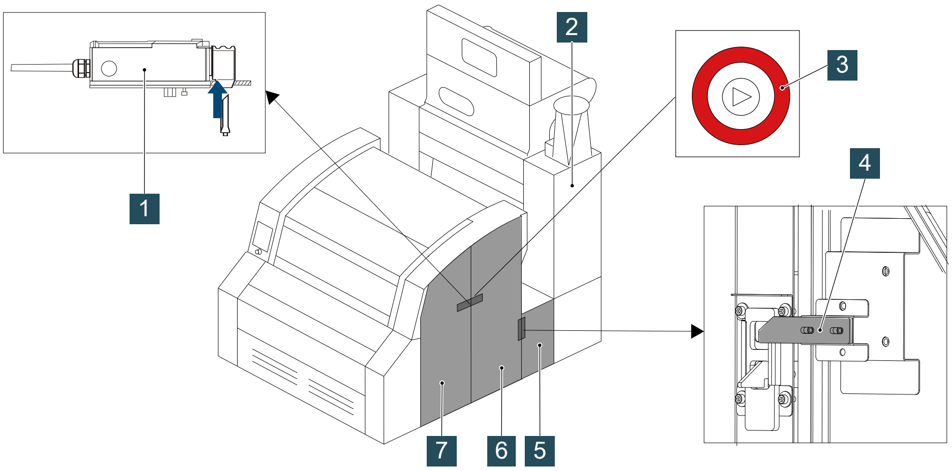


Figure 8: Safety devices at the doors

DANGER

The safety devices are removed or bypassed!

Death or dangerous injuries

- ▶ Do NOT remove the installed safety devices.
- ▶ Do NOT bypass the installed safety devices.

- – A safety switch monitors the card chute door 2. The machine is only possible to be operated when the card chute door 2 is closed.
- – The safety switch 1 locks the doors 6 and 7.
- – The safety switch 1 only unlocks the doors 6 and 7 if the cylinder is at a standstill.
- – The machine starts only if the doors 6 and 7 are locked.
- – The mechanical interlock mechanism 4 secures the door 5.
- – To unlock the door 5, the doors 6 and 7 must be open.

2.7.4.3 Safety Devices at the Card

The safety devices at the card with the safety functions are as follows:

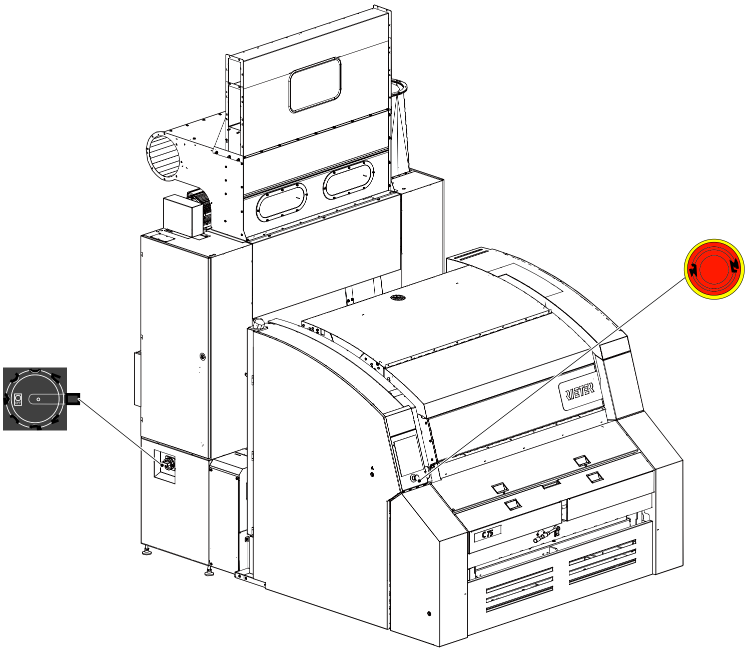
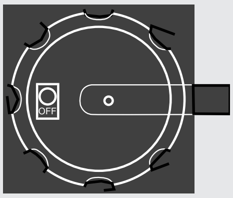
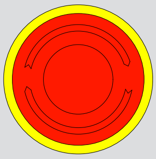


Figure 9: Safety devices at the card

Safety Device	Description
Main switch  	The main switch has the position 0 or OFF and the position 1 or ON. To disconnect the power supply from the machine, the main switch is set to the position 0 or OFF. To connect the power supply to the machine, the main switch is set to the position 1 or ON. The main switch is not an emergency stop button. The operator must set the main switch to position 0 or OFF and padlock the main switch before the maintenance works and the repair works.
Emergency stop button 	The emergency stop button is only used in an emergency. If the operator pushes the emergency stop button: – The machine stops immediately. – All connected peripheral machines of the machine stop immediately. To unlock the emergency stop button, the emergency stop button is to be turned.

2.8 User Qualification and Hierarchy

This chapter contains the information about the 3 different user levels that are related to the type of the tasks that are done at the machine:

Operators (Level 1)

The operators are approved personnel that do the cleaning tasks and the daily maintenance work at the machine.

- The operators know the machine safety and how to keep the machine safe.
- The operators use the personal protective equipment if the personal protective equipment is necessary.
- The operators do a regular training to operate the machine safely.
- The operators know the operation manual and, specially, the safety chapter of this manual.

Supervisors (Level 2)

The supervisors are approved personnel that do the work at the machine.

- The supervisors are permitted to do the configuration of the specified machine parameters, to do the maintenance work, and to give instructions to the operators.
- The supervisors did the Rieter training courses and got the certificates.

Technicians (Level 3)

The technicians are approved personnel that do the work at the machine. The technicians have expertise that was given by Rieter about the adjustments and the maintenance of the machine.

- The technicians make changes to most of the machine parameters.
- The technicians are permitted to give instructions to the supervisors and the operators.
- The technicians regularly do the Rieter training courses and get the certificates.

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3 Product Information

This chapter contains the information about the basic machine functions and the primary machine assemblies. This chapter contains the information about the location of the machine identification plate and the technical data of the machine.

3.1 Intended Use

The card has the functions that follow:

- Open the raw material.
- Make the fibers parallel to each other.
- Remove the unwanted material.
- Make the carded web or the sliver.

3.1.1 Raw Materials

The machine only uses the textile raw material that follows:

Cotton	From all sources
Man-made fibers	Natural polymers and synthetic polymers
Maximum staple length	65 mm

3.1.2 Misuse

Non-textile raw materials must not be processed.

3.2 Identification Plates

When an order for the spare parts of the machine is sent to the manufacturer, the information on the identification plate is to be referred to.

The identification plates are at the positions that are shown in the figure that follows.

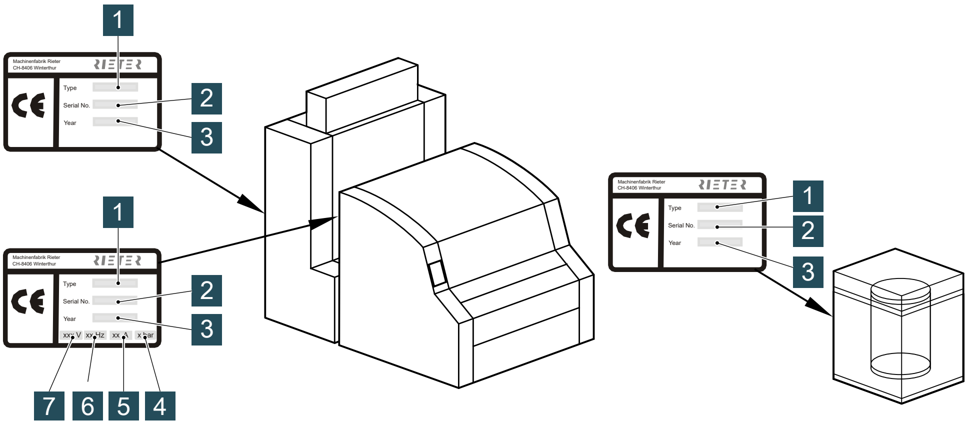
1
Machinenfabrik Rieter
CH-8406 Winterthur
Type
Serial No.
Year
2
3
1
Machinenfabrik Rieter
CH-8406 Winterthur
Type
Serial No.
Year
xxx V
xx Hz
xx A
x bar
2
3
7
6
5
4
Machinenfabrik Rieter
CH-8406 Winterthur
Type
Serial No.
Year
1
2
3

Figure 10: Identification plate

1	Machine type	2	Serial number
3	Year of manufacture	4	Rated compressed-air pressure
5	Rated current	6	Rated frequency
7	Rated voltage		

3.3 Machine Components

This section contains the information about the machine units and the machine components. The section also contains the basic function of the machine units.

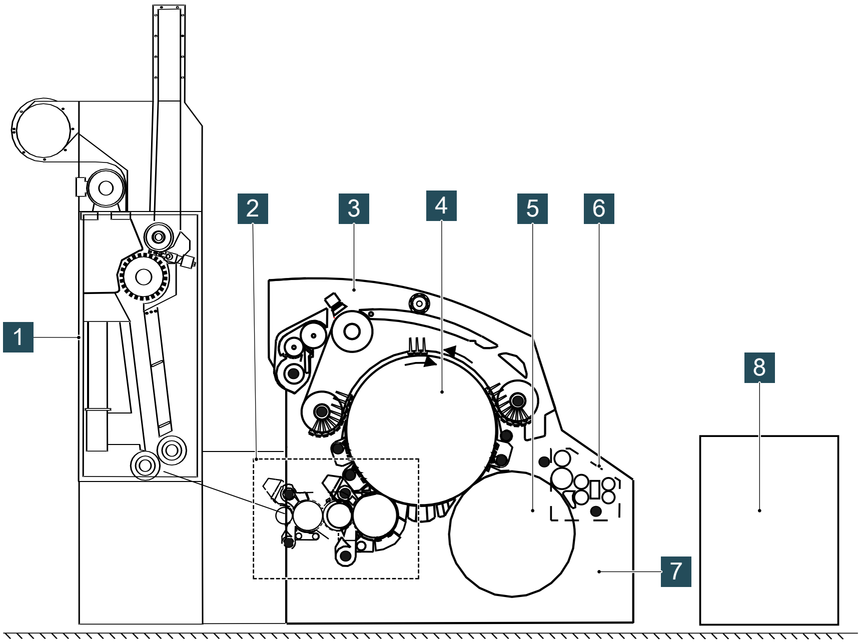

Figure 11: Machine components

The machine has 3 primary units:

- Card chute 1
- Card 7
- Sliver coiling device 8

The card chute 1 opens the tufts and sends the material to the card 7. The card 7 is the primary unit that opens, cleans, and does the carding of the material. The sliver coiling device 8 collects the material.

The sliver coiling device 8 is optional. The machine with the sliver coiling device 8 has the coiler types that follow:

- Sliver coiling device CBA

The card 7 has the primary components that follow:

- Licker-in unit 2
- Card flats 3

- Cylinder 4
- Doffer 5
- Delivery unit 6

3.4 Function Description

This section contains the information about the primary components of the machine and the material flow through the machine.

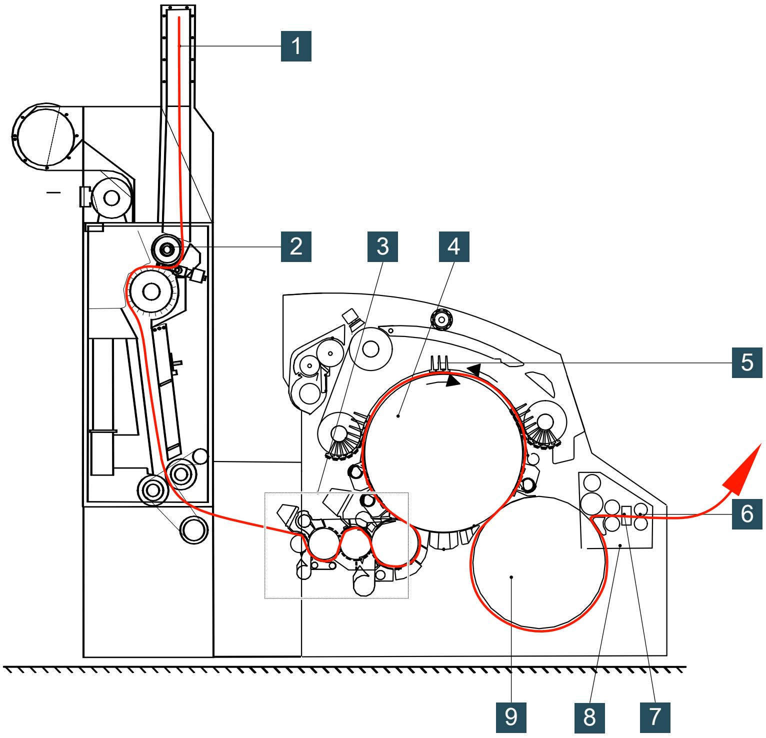

Figure 12: Machine components and the material flow

1	Feed unit	2	Opening unit
3	Licker-in unit	4	Cylinder
5	Card flats	6	Disk rollers
7	Cross apron	8	Delivery unit
9	Doffer		

The working principle of the card is as follows:

1. The tufts come to the feed unit 1 through the AEROfeed system.
2. The opening unit 2 (with the feed roller and the opening roller) opens the tufts and then the tufts move to the lower section of the card chute.
3. The licker-in unit 3 moves the tufts over the mote knives and the carding elements for the cleaning and the preliminary opening.
4. The licker-in moves the cleaned tufts to the cylinder 4 and the card flats 5.

5. The cylinder 4 and the card flats 5 turn in opposite directions to each other. The tufts are opened again and cleaned between the teeth of the cylinder clothing and the hooks of the card flat clothing.
6. The doffer 9 gets the material from the cylinder 4 and sends the material to the delivery unit 8.
7. The delivery unit 8 moves the web to the cross apron 7. Here, the web becomes the card sliver.
8. The disk rollers 6 pull the card sliver through the sliver funnel. The card sliver moves through the coiler into the can.

3.5 Technical Information

This section contains the information about the technical information of the standard machine.

3.5.1 Dimensions

This section contains the information about the dimensions of the machine. All dimensions in the figures are given in millimeters.

3.5.1.1 Side View of the Machine

This section contains the information about the side view of the machine.

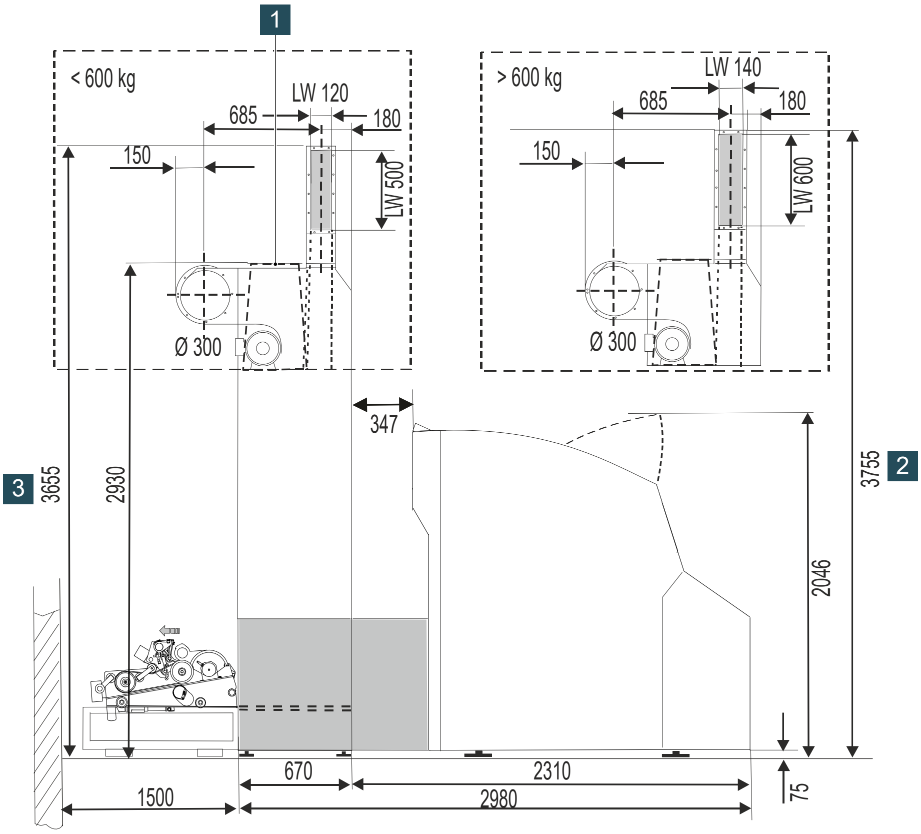
1
< 600 kg
LW 120
685
180
150
LW 500
Ø 300
> 600 kg
LW 140
685
180
150
LW 600
Ø 300
347
3
3655
2930
2
3755
2046
670
2310
1500
2980
75

Figure 13: Side view of the machine

All dimensions are given in millimeters.

1	The licker-in waste moves downward.	2	The height of the card chute is 3 755 mm if the line production is more than 600 kg.
3	The height of the card chute is 3 655 mm if the line production is at a maximum of 600 kg.		

3.5.2 Performance Characteristics of the Feed Unit and the Delivery Unit

This section gives the information about performance characteristics of the feed unit and the delivery unit.

Feed Unit

Raw Materials Intended for Use	
Cotton	All sources
Man-made fibres	Natural and synthetic polymers
Maximum staple length	65 mm

Fiber Length	
Maximum fiber length	65.0 mm

Feeder Weight	
Feeder weight	600 – 900 g/m

Delivery Unit

Possible Sliver Weights for Coiler CBA	
Disk roller width: 9 mm	4 – 12 ktex
Disk roller width: 15 mm	8 – 20 ktex
Step roller width: 6 mm	≤ 8 ktex (PES or swing with PES)
Step roller width: 9 mm	> 8 ktex (PES or swing with PES)

Drafts in the Card	
Total draft range	25 – 225

Maximum Production Depending on the Raw Material	
Cylinder drive, capacity H (C70 H)	≥ 160 kg/h
Cylinder drive, capacity M (C70 M)	120 – 160 kg/h
Cylinder drive, capacity L (C70 L)	≤ 120 kg/h

3.5.3 Range of Application of the Sliver Autoleveler

- Cotton of any origin
- Chemical fibres and blends up to 65 mm fiber length

3.5.4 Quality Data at the Operating Unit

This section contains the information about quality data on the operating unit.

Automatic Recording of the Quality Data

- Calculation of the sliver weight deviation (A %)
- Calculation of the CV% values
- Calculations for the spectrogram
- Calculations of the number of slubs

Sliver Weight Variation Coefficient CV

Display and monitoring of the cutting length and reference length and the switch-off limits.

The cutting length and the reference length are determined by the user.

3.5.5 Ambient Conditions of the Carding Room

This section contains the information about the ambient conditions of the carding room.

Parameter	Cotton	Man-Made Fibers
Room temperature	24 – 28 °C	23 – 27 °C
Relative humidity	48 – 54 %	48 – 56 %
Absolute humidity for each kg of air	9 – 12 g	9 – 12 g

3.5.6 Standard for the Compressed-Air Quality

The Pneurop class 3/4/5 is to be obeyed to measure the quality of the compressed air.

Humidity of the Compressed Air	
Pressure dew point	- 20 °C

Impurities in the Compressed Air	
Impurity quantity	≤ 5 mg/m³
Permitted particle size of the impurities	≤ 5 nm

Oil Content of the Compressed Air	
Incoming air	1.0 mg/m³

3.5.7 Compressed Air

The value of the air pressure of the supply line is given in the table that follows:

Parameter	Value
Air pressure of the supply line	7.0 – 8.0 bar

The assemblies and the related values of the compressed-air consumption are given in the table that follows:

Assembly	Compressed-Air Consumption
Card	0.70 m³/h
Automatic disposal in the doffer area	1.10 m³/h
Waste removal system for the licker-in	0.01 m³/h
Sliver coiling device CBA	0.1 m³/h

3.5.8 Requirements of the Compressed-Air Supply Line

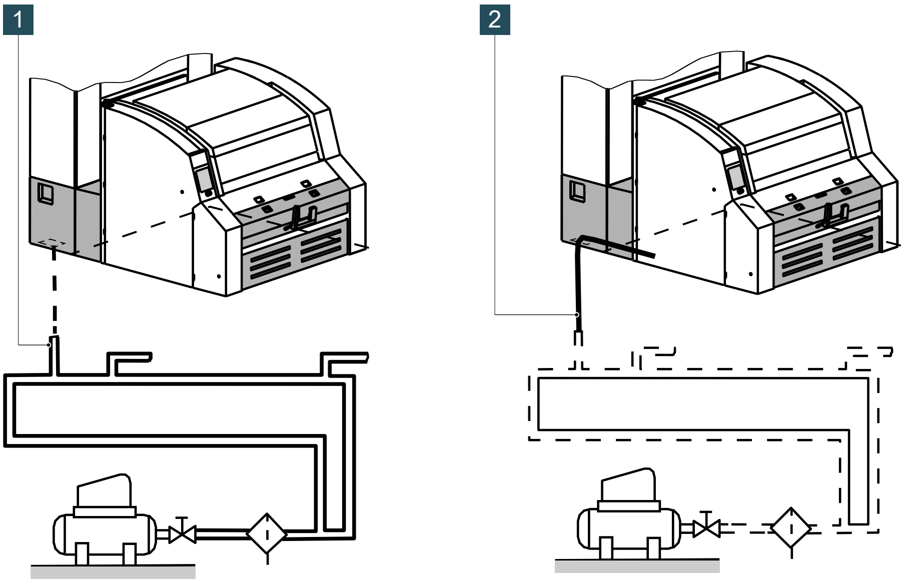

Figure 14: Compressed-air supply line

Parameter	Value
Diameter of the ring line of air pipe 1	1 – 2 inches
Length of the flexible connection hose 2	≤ 4 m

The requirements of the compressed-air supply line are as follows:

- The compressed-air supply line is a ring line.
- The compressed-air supply line has a water separator.

3.5.9 Air Ratios for the Waste Removal

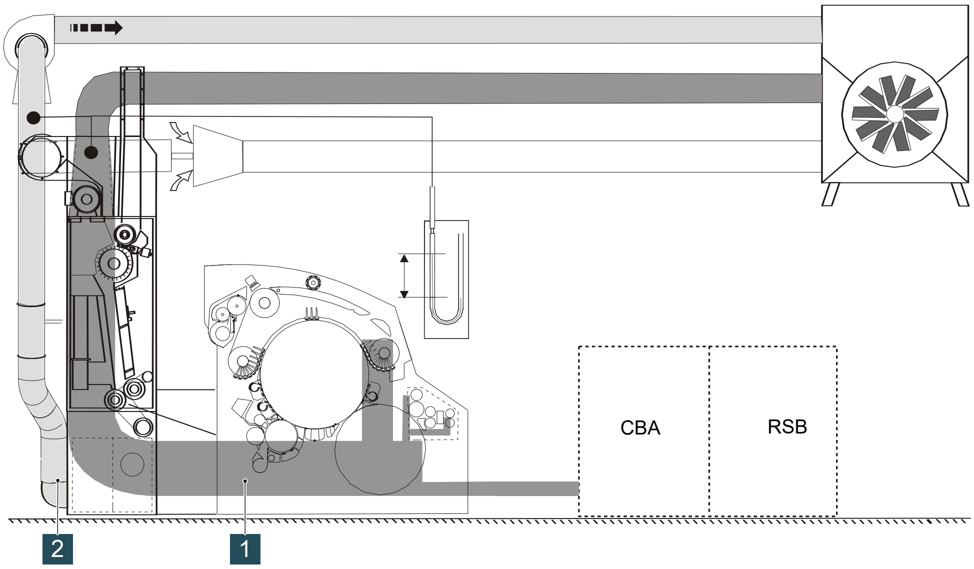

Figure 15: Waste removal point at the machine

1 Waste removal of the machine	2 Isolated waste collection at the licker-in

Air Ratio for the Waste Removal	
Pressure	1 000 – 1 300 Pa
Air volume of the suction unit of the sliver coiling device CBA	1.3 m³/s

Isolated Waste Collection at the Licker-in	
Air volume	0.5 m³/s
Pressure	≥ 1 300 Pa

3.5.10 Exhaust Air Volume of the Card Chute

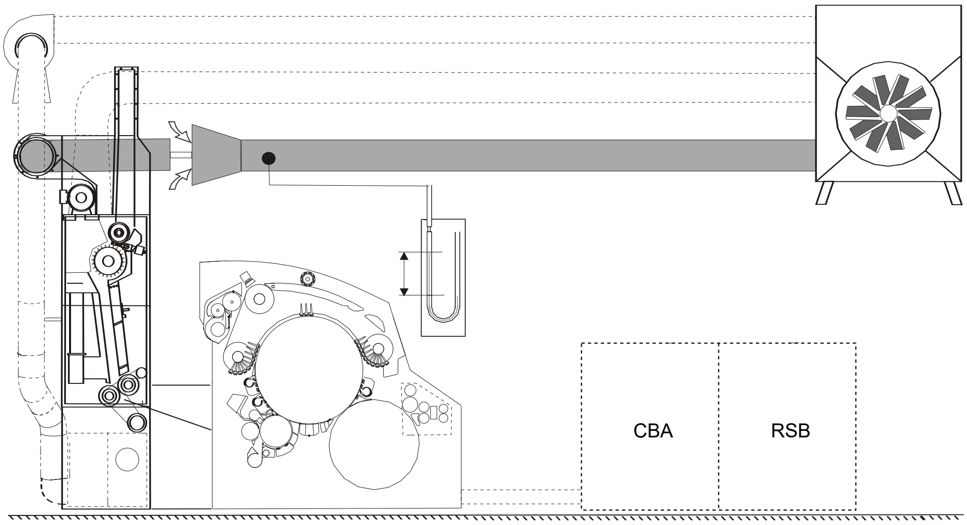

Figure 16: Exhaust air pipe at the card chute

Exhaust Air Volume of the Card Chute and Vacuum	
Exhaust air volume	0.60 m³/s
Vacuum	-150 – -50 Pa

3.5.11 Sound Emission of the Card

The ISO 9902 is 1 standard of the standards in the ISO 4871.

The standard ISO 9902 is to be obeyed to measure the sound emission. The sound emission is to be measured at a distance of 1 m from the machine.

The formula of the sound emission is L_m + K.

- L_m = Mean value
- K = 3 dB (safety margin)

Delivery Speed	L_{Wad}	L_{pAd}
100 m/min	93^{+3} dB	74^{+3} dB
250 m/min	96^{+3} dB	77^{+3} dB
400 m/min	98^{+3} dB	79^{+3} dB

L_{Wad}: A-weighted sound power level (reference power: 1 pW)

L_{pAd}: A-weighted sound pressure level (reference pressure: 20 µPa)

The sound emission is measured with the conditions that follow:

- No material is in the machine.
- The cylinder turns at 800 rpm.
- The machine has a central suction system.
- The machine has a card chute and the compression fan turns at 2 900 rpm.

3.5.12 Electrical Data

Parameter	Value
Supply voltage	400 VAC (+/- 10 %)
Number of phases	3

If the supply voltage does not have the specified value, an upstream transformer is to be used.

More information on the machine-specific power ratings and the back-up fuses is available in the electrical documentation.

3.5.13 Weights

This section contains the information about the weight of the machine components and the total weight of the machine.

Assembly	Weight
Total weight of the machine (without sliver coiling device)	4 000 kg
Card chute	1 200 kg
Card flat assembly	720 kg
Doffer	270 kg
Delivery unit	850 kg
1 licker-in	570 kg
3 licker-ins	675 kg
Sliver coiling device CBA, can diameter: 600 mm	≈ 400 kg
Sliver coiling device CBA, can diameter: 750 mm	≈ 550 kg
Sliver coiling device CBA, can diameter: 800 mm	≈ 550 kg
Sliver coiling device CBA, can diameter: 1 000 mm	≈ 800 kg
Sliver coiling device CBA, can diameter: 1 200 mm	≈ 1 100 kg

3.5.14 Requirements for the Cans in the Delivery Units

The requirements on the cans in the delivery units are as follows.

Spring Force for the Cans with Casters

Spinning Cans with Casters					Spring Force ± 5% Fn					Spring Plate	
mm		inch		mm	Newton (N) 1N = 0.1 kp*					mm	
CD	CH	CD	CH	CH	Fn_0	Fn_1	Fn_2	Fn_3	Fv	d_4	h_4
600	900	24	36	914	260	210	200	180	8	585	60
	1000		40	1016	290	230	230	200			
	1070		42	1067	310	250	240	210			
	1100		44	1118	320	260	250	220			
	1150		45	1143	340	270	260	230			
	1200		48	1219	350	280	280	240			
	1270		50	1270	370	300	290	260			
	1300		51	1295	380	310	300	280			
	1500		60	1524	440	350	350	300			
1000	1000	40	40	1018	--	400	380	320	12	950	100
	1070		42	1067		430	420	350			
	1100		44	1118		440	430	360			
	1150		45	1143		470	450	370			
	1200		48	1219		490	470	380			
	1270		50	1270		520	500	410			
	1300		51	1295		530	510	420			
	1500		60	1524		620	600	490			

Fn_0	Combed CO	Fn_1	CO and CV
Fn_2	Blends	Fn_3	Man-made fibers
Fv	Preliminary tension		

The user can get the referenced values of the spring force from the table above. These values change with the material type and the processing level.

Can Dimensions of the Cans with Casters

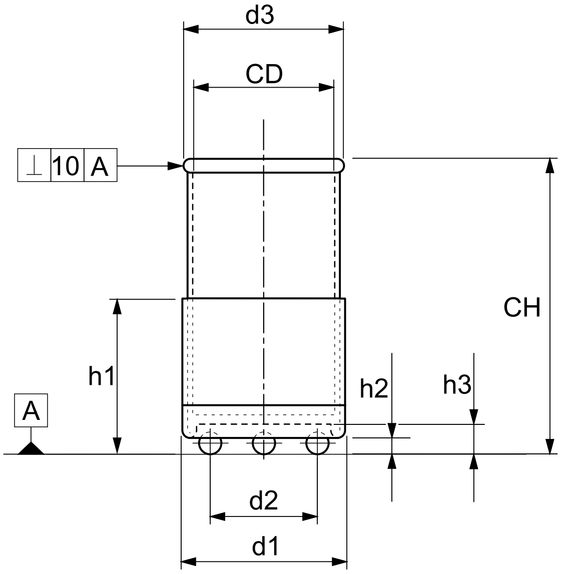

Figure 17: Can dimensions of the cans with casters

CH	Can height (nominal dimension)	CD	Can diameter (nominal dimension)
d1	Outer can diameter with reinforcement	d2	Caster diameter
d3	Outer can diameter at up rim bead	h1	Height of can reinforcement
h2	Can ground distance	h3	Height that increases for casters

The values that show in the table that follows are the referenced can dimensions.

Can Dimensions of the Cans with Casters	
Description	**Specific**
Limit values for the external diameter of the can on the top rim bead (for CD ≤ 470 mm) (d3)	CD + 15 mm
Maximum outer can diameter at up rim bead (d3)	CD + 30 mm
Limit values for can diameter (CD ≤ 600 mm)	CD ± 3 mm
Limit values for can diameter (CD ≤ 800 mm)	CD ± 6 mm
Limit values for can height (CH)	CH ± 5 mm
Limit values for the outer diameter of the can bottom with reinforcement (d1)	CD + 15 mm tolerance: -5 mm – 0 mm

Can Dimensions of the Cans with Casters

Description	Specific
Ground clearance of the can (CD ≤ 600 mm) (h2)	60 mm
Ground clearance of the can (CD ≤ 800 mm) (h2)	80 mm
Height that increases for casters (CD ≤ 600 mm) (h3)	85 mm
Height that increases for casters (CD ≤ 800 mm) (h3)	85 mm
Minimum caster circle diameter (CD ≤ 600 mm) (d2)	CD - 120 mm
Minimum caster circle diameter (CD ≥ 800 mm) (d2)	CD - 160 mm

Important information The casters on the cans must be in 120° angle with each other in the caster circle.

Requirements of the Cans

The information that follows is about the requirements of the cans.

CAUTION

Using damaged cans!

Crushing risk for personnel

▶ Use the cans that are not damaged in the delivery.

- Examine the cans for the damage regularly.
- Make sure that the distance between the up edge of the can and the coiler is in the range of 31 ± 5 mm.
- Only use the cans with the spring plates in the delivery.
- Only use the spring plates on the cans that have a structured surface in the delivery.
- Make sure that the distance X, which the spring plate goes out of the empty can is in the range of 5 ± 5 mm.

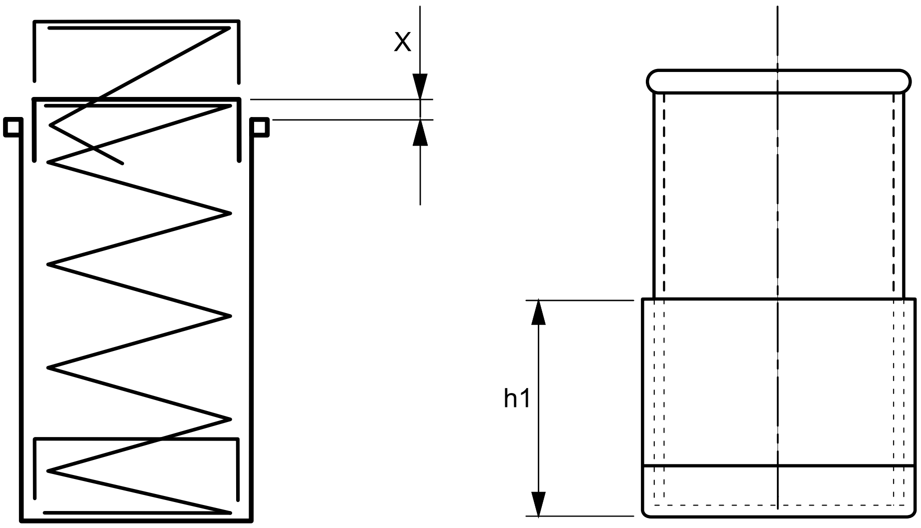

Figure 18: Requirement for the cans

- The trial and error can give an accurate spring force.
- The spring force should be decreased to 50 % for the voluminous fibers, for example PAN.
- If the cans are made from the vulcanized fiber, only use the cans that are made stronger in the area h1 if the cans are made from the vulcanized fiber.
- Only use the cans with the handles installed above the area h1 on the can.

3.5.15 Formulas

This section gives the information about the technical formulas for the MTBA, the machine efficiency, and the production efficiency.

Mean Time Between Assist (MTBA)

$$\text{MTBA} = \frac{A + B}{S}$$

A	Production duration in production mode	B	Unproductive time in production mode
S	Number of stoppages due to internal faults		

MTBA means the average length of time between successive acts of intervention by the operator. These MTBA data values enable the running properties of a machine or that of an entire system to be concretely expressed in terms of numbers. The higher the MTBA value, the longer the average production duration between successive acts of intervention by the operator.

Production duration in production mode: When a machine is started in automatic mode, it enters production mode. As soon as the machine tops (stop button, fault), it exits production mode.

Unproductive time in production mode: Time when no material is produced.

Machine Efficiency

$$MN = \frac{A + B}{A + B + D}$$

MN	Machine efficiency	A	Production time in the production mode
S	Number of stoppages due to internal faults	D	Time of the machine is not in the production mode because of the fault.

The machine efficiency is related to the internal causes of the machine. External causes and standstills caused by the operator (such as pressing an emergency stop button, preventative measures, maintenance work, etc. are not taken into account). The machine efficiency shows the availability of the machine.

Production Efficiency

$$PN = \frac{A}{T}$$

PN	Production efficiency	A	Production duration in production mode
T	Total time of the production		

The formula above is the simplified formula for machines with constant rates of delivery.

The production efficiency indicates the ratio of the actual production of a machine to the total target production.

When a machine is started in automatic mode and the machine starts to operate in the production mode. As soon as the machine stops (stop button, fault), it exits the production mode.

3.6 IGS-Classic

The IGS-Classic is installed under the cylinder to sharpen the cylinder clothing.

3.6.1 Automatic Sharpening of the Cylinder Clothing

The cylinder grinding device IGS-classic (IGS = Integrated Grinding System) is used for periodic sharpening of the tooth tips during the entire service life of the cylinder clothing. IGS calculates the grinding schedule with optimal distribution of the defined grinding cycles. Number of grinding cycles during lifetime of a clothing wire is 270 – 800.

- Up to 400 grinding cycles: one grind stone is enough
- Over 400 grinding cycles: second grind stones may be required

At the beginning of the grinding schedule, the time between the cycles is longer than time is at the end.

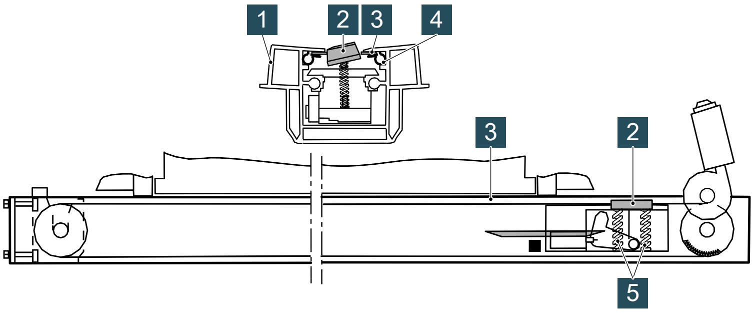

Figure 19: Sharpening of the cylinder clothing

The aluminum profile 1 is the bearing component. The linear-guided grinding stone runs inside the grinding stone 2. The grinding stone is stabilized through spring force 5.

In the park position (right side of the machine) the flat belt 3 is pressed upward through clamp profiles 4 so that neither dust nor fiber parts can get into the interior of the profile. Replace the grinding stone 2, when the cylinder clothing is replaced.

3.6.2 Operating Principle

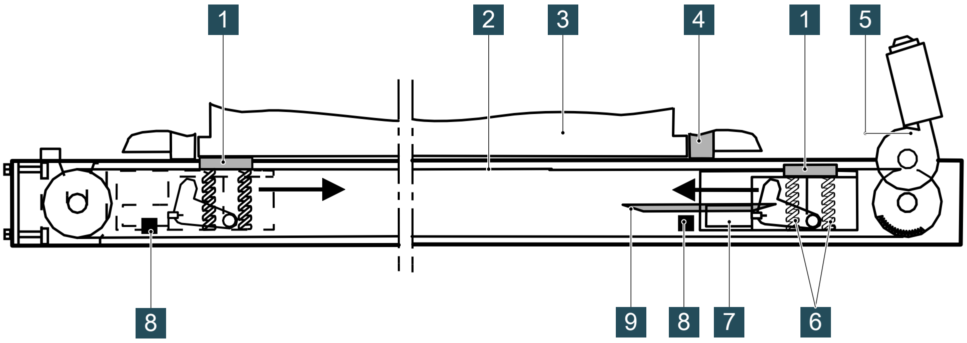

Figure 20: Mode of operation

The grinding stone 1 is located on the right side of the machine (park position).

At the beginning of the grinding cycle the clamp profiles are widened with compressed air so that the flat belt becomes 2 free. The grinding stone 1 moves to the left side of the machine in lowered position.

On the left side of the machine, the magnetic limit switch 8 activates the electromagnet 7, which releases the grinding stone 1.

The springs 6 press the grinding stone 1 with very little force against the cylinder clothing 3. At the same time, the direction of rotation of the motor 5 is changed.

En route to the right side of the machine, the grinding stone processes the cylinder clothing. At the end of the grinding cycle, the grinding stone is routed through the gate 9 under the cylinder segment 4.

If the grinding stone does not reach its original position within 20 seconds of starting, the cycle will be interrupted. The grinding stone is lowered and moves back to the park position automatically. A warning appears on the text display.

If the fault occurs at the next cycle, the cylinder grinding device IGS-Classic will be shut down. A fault message appears on the text display.

3.7 IGS-Top

The IGS-Top is installed above the card flats to sharpen the card flat clothing.

3.7.1 Automatic Sharpening of the Card Flat Clothing

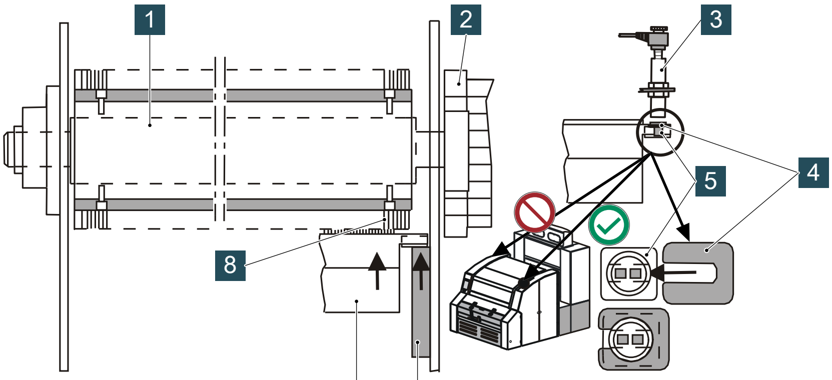

Figure 21: Automatic sharping of the card flat clothing

To make sure that the needles of the card flat clothing 7 are always sharp, the grinding brush 1 processes the needles in calculated grinding cycles. Thus a more uniform carding is achieved over the entire service life of the card flats 7.

The controller starts the grinding cycle and the motor of the 2 grinding brush 1.

Pneumatic cylinders push the spring-loaded shoes 6 upward. This lifts the card flats 7. The slider for dust extraction opens at the same time.

The bristles 8 of the grinding roller sharpen the needles of the card flats 7. The needles get a sharp working edge.

Each sharpened card flat is registered by the controller. To do this a metal platelet 5 is mounted on a card flat clip 4 that is detected by the proximity switch 3. The following card flats are counted.

The grinding brush 1 remains active only during one handling of the card flats 7.

Once the cycle is finished the pneumatic cylinders are off-loaded the suction unit is closed and the motor of the grinding brush 2 is stopped.

If there is a power outage during the grinding cycle the controller will register the last processed card flat.

After the power outage the grinding cycle will be continued at the right place. This ensures that all card flats are sharpened equally often.

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4 Display Elements and Operating Elements

This chapter contains the information about the elements that are used to operate the machine.

4.1 Display Elements

This section contains the information about the display elements of the card.

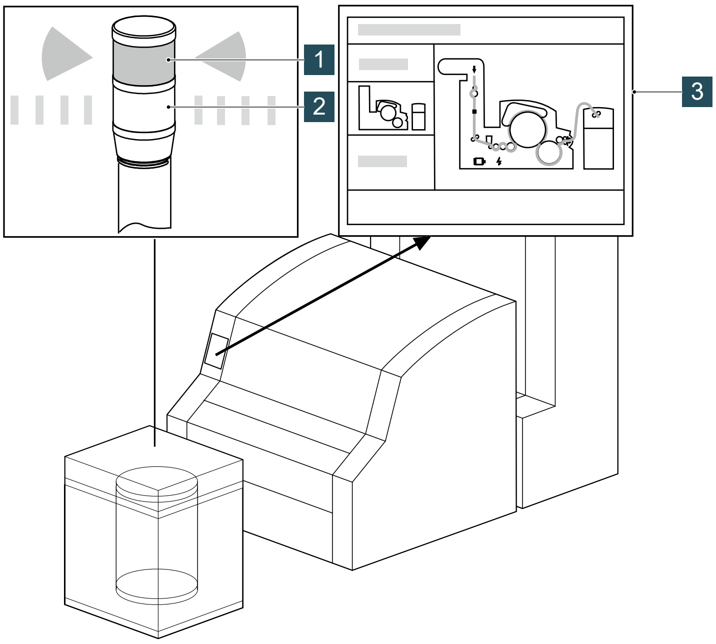


Figure 22: Display elements

1	Signal lamp for the machine status	2	Signal lamp for the can change
3	Display of the operating unit		

4.1.1 Signal Lamp

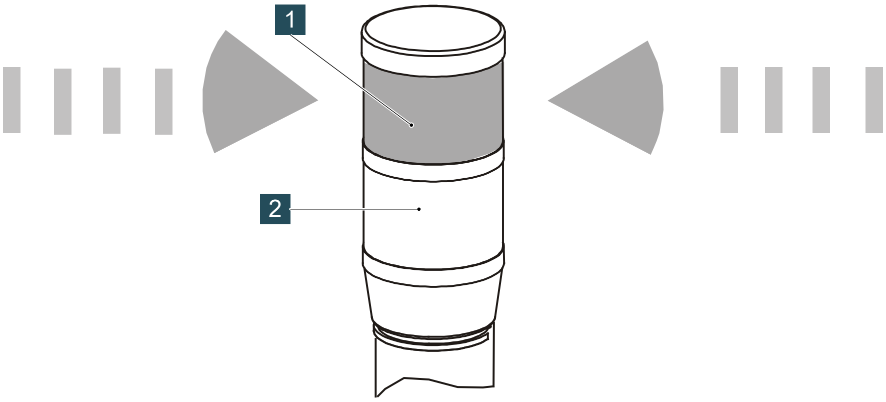


Figure 23: Signal lamp

1 Signal lamp for the machine status	2 Signal lamp for the can change

Signal	Status	Condition	Description
1	Off	--	The main switch is set to the position OFF.
		The main switch is set to the position ON.	– The machine is in operation. – The test mode is active.
		The test of the IGS-top is in operation.	The grinding pressure is correct.
		The grinding of the card flats is in operation.	The grinding of the cylinder, the doffer, or the card flats is being done.
	On	--	A fault occurred at the machine. The operator must obey the text on the display at the operating unit.
		The main switch is set to the position ON.	After the system test is done, the machine is ready for the operation.
		The test of the IGS-top is in operation.	The current grinding pressure is high or too high.
	Flashes	--	– No empty can is in the can changer.

Signal	Status	Condition	Description
			– The rod limit switch does not operate at the can feed unit. – The function is only available with the correct entry in the related data screen.
		The test of the IGS-top is in operation.	The current grinding pressure is low or too low.
2	Flashes	--	– The machine waits for the can change. – The can change is in operation.

4.2 Operating Elements of the Card

The figure that follows shows the operating elements and the primary parts of the machine.

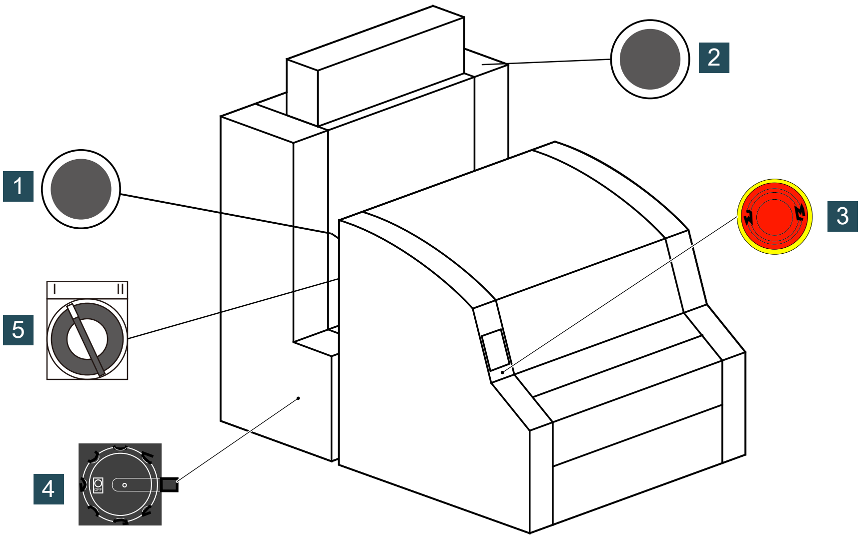


Figure 24: Operating elements

1	Button to turn the feed roller of the card backward	2	Button to turn the feed roller in the card chute backward
3	Emergency stop button	4	Main switch
5	– Key switch for the card flat grinding – Key switch for the doffer grinding (**Option**: Prepared for compacting roller)		

Button to Turn the Feed Roller of the Card Backward

If the operator pushes the button to turn the feed roller of the card backward 1:

1. The feed roller of the card turns backward.
2. The supplied batt is pushed out of the card.

Button to Turn the Feed Roller in the Card Chute Backward

If the operator pushes and holds the button to turn the feed roller in the card chute backward 2:

1. The feed roller in the card chute turns backward.
2. The cylinder is stopped.
3. The material that causes a blockage is moved out of the feed roller that is in the card chute.

If the button to turn the feed roller in the card chute 2 is pushed for a long time, the seals at the feed roller are possible to become damaged.

Emergency Stop Button

The emergency stop button 3 is used in an emergency or used to open the doors at the right side of the card. If the operator pushes the emergency stop button 3:

1. The machine stops as fast as possible.
2. All connected peripheral machines of the machine stop immediately.

To unlock the emergency stop button 3, the emergency stop button 3 is to be turned.

Main Switch

The main switch 4 has the position 0 (or OFF) and the position I (or ON). To disconnect the power supply from the machine, the main switch 4 is set to the position 0 (or OFF). To connect the power supply to the machine, the main switch 4 is set to the position I (or ON). The main switch 4 is not an emergency stop button.

The operator must set the main switch to the position 0 (or OFF) and padlock the main switch before the maintenance works and the repair works.

Key Switch

The key switch 5 has 2 positions:

- Position I: Automatic mode, for testing and grinding of cylinder and doffer
- Position II: Grinding mode, for grinding of flats and adjusting of IGS

4.3 Operating Unit

This chapter provides basic information for handling the operating unit. Persons who have been assigned to configure the machine require this information.

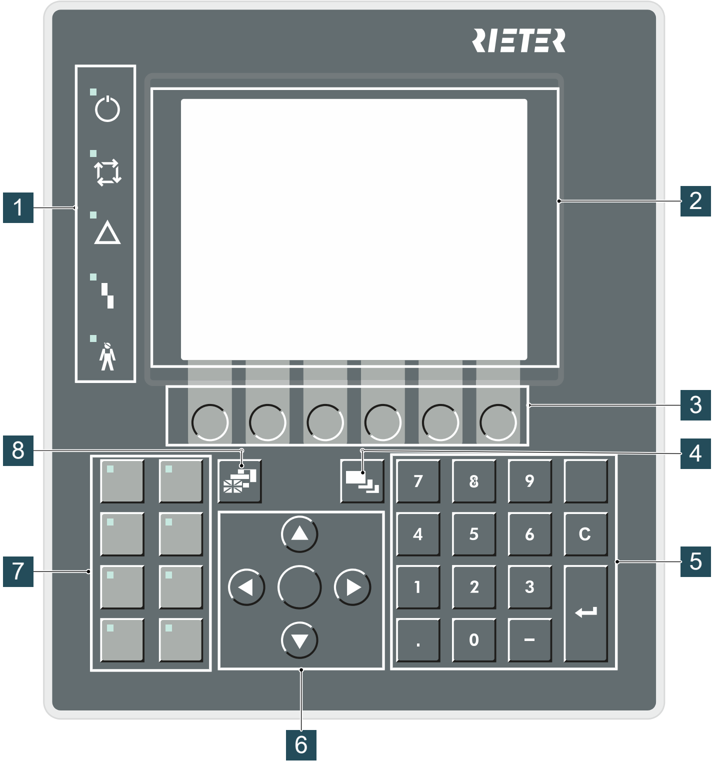
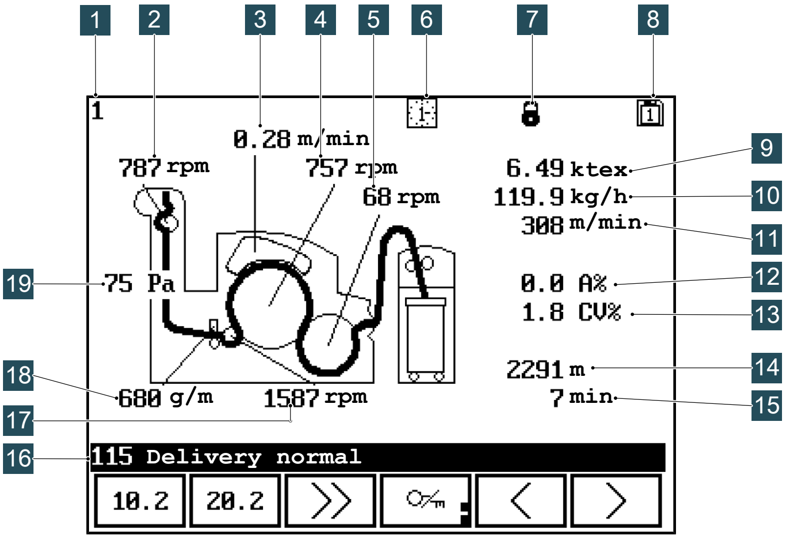


Figure 25: Operating unit

1	Status LEDs	2	Display
3	Program keys	4	Main screen key
5	Numeric keys	6	Navigation keys
7	Machine keys	8	Language selection key

4.3.1 Main Screen of the Operating Unit

Messages of events like malfunctions or warnings are displayed in the form of text or diagrams at the main screen. If there are several messages simultaneously these can be displayed separately one after another.

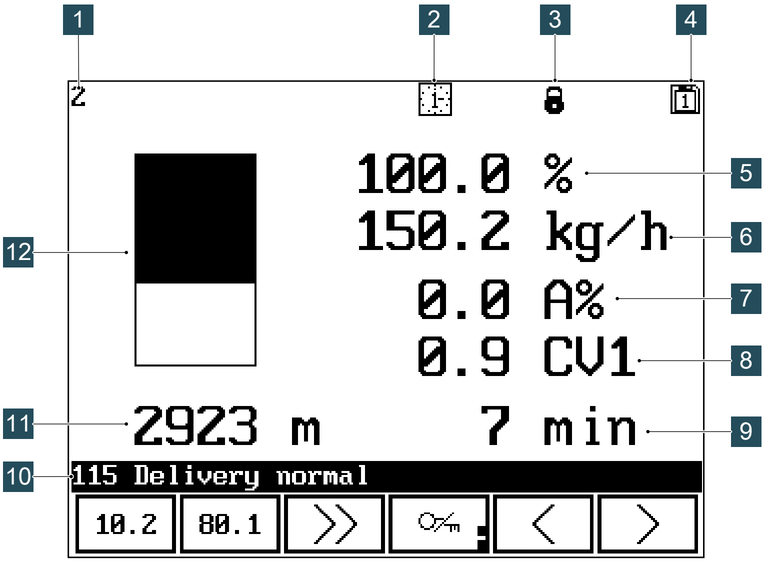

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
1
0.28 m/min
787 rpm
757 rpm
68 rpm
6.49 ktex
119.9 kg/h
308 m/min
75 Pa
0.0 A%
1.8 CV%
2291 m
7 min
680 g/m
1587 rpm
10.2
20.2

115 Delivery normal

Figure 26: Main screen of the operating unit

1	Screen number	2	Speed of opening roller
3	Speed of the card flats	4	Cylinder speed
5	Doffer speed	6	Display for the selected shift
7	Status of the secured doors	8	Production value group
9	Sliver weight	10	Production per hour
11	Delivery per minute (delivery speed)	12	Weight deviation for card sliver
13	CV value of card sliver	14	Meters remaining until can change
15	Time remaining until can change	16	Machine status
17	Licker-in speed	18	Weight of the feed batt
19	Air pressure in the chute		

4.3.2 Main Screen 2 of the Operating Unit



2
100.0 %
150.2 kg/h
0.0 A%
0.9 CV1
2923 m
7 min
115 Delivery normal

Figure 27: Main screen 2 of the operating unit

1	Screen number	2	Display of the selected shift
3	Secured doors are locked	4	Production value group
5	Pre-selectable efficiency See *Data Screen 11.3 Production Efficiency / MTBA ▸ 85*	6	Production per hour
7	Weight deviation for card sliver	8	CV value of card sliver
9	Time remaining until can change	10	Operating status
11	Length remaining in meters until can change	12	Graphic representation of the current can filling

4.3.3 Fault Screen

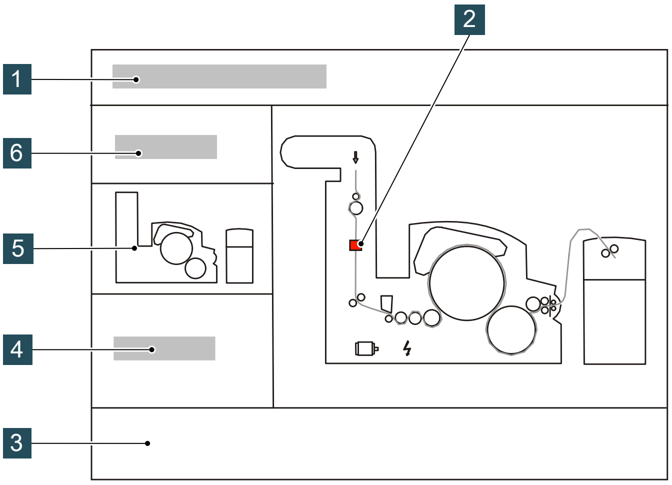


Figure 28: Fault screen

1	Display of alarm text	2	Graphic presentation of the cause
3	Help text with information an applicable cause and rectification	4	Sequence and number of queued messages
5	Location of the cause	6	Fault code number

4.3.4 Machine Keys

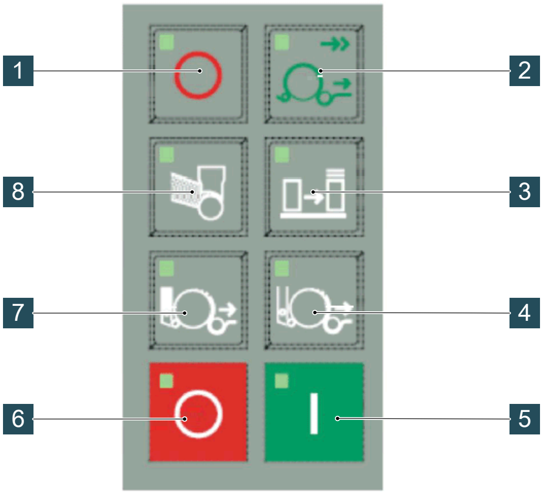


Figure 29: Machine keys

1	Doffer stop key	2	Production start key
3	Can change key	4	Key for emptying the line
5	Start key	6	Stop key

7	Key for emptying the chute and card	8	Key for stopping the feed roller

4.3.5 Status LED

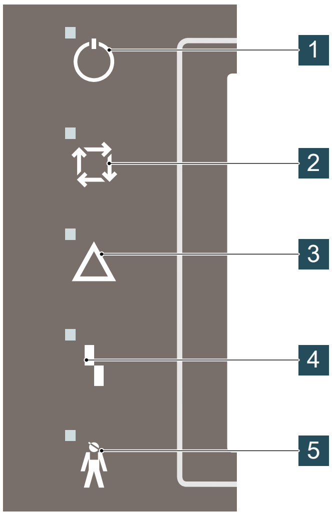


Figure 30: Status LED

1	Operating state LED	2	Production mode LED
3	Warning message LED	4	Fault LED
5	Service personnel request LED		

Operating State LED

The explanations of the status of the LED are as follows:

- The LED is off when the main switch is set to the position OFF, or there is no power of power supply 24 VDC.
- The LED is on when first action is carried out, for example, starting the machine or entering the password.
- The LED flashes after power up.

Production Mode LED (Automatic Mode)

The explanations of the status of the LED are as follows:

- The LED is off when there is no production.
- The LED is on when the machine is in the production mode.
- The LED flashes when the production runs without leveling or the production is at normal speed leveled.

Warning Message LED

The explanations of the status of the LED are as follows:

- The LED is off when there is no active warning message.
- The LED is on when there is active warning message.

Fault LED

The explanations of the status of the LED are as follows:

- The LED is off when there is no disturbance.
- The LED is on when there is active disturbance or there is disturbance not quitted yet.

Service Personnel Request LED

The explanations of the status of the LED are as follows:

- The LED is off when no action of service personnel is necessary.
- The LED is on when action of service personnel is necessary.

4.3.6 Program Keys

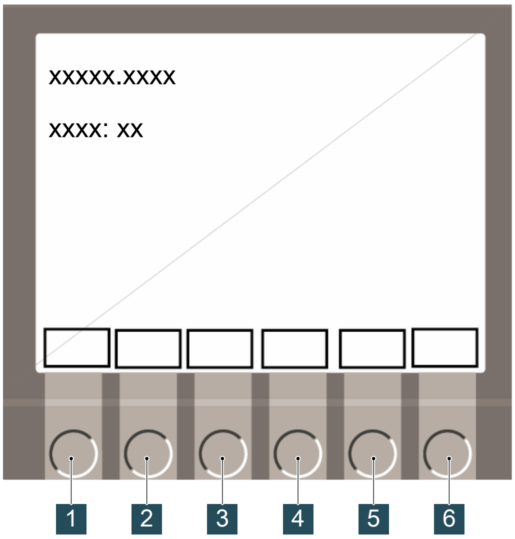


Figure 31: Program keys

The machine has 6 program keys. Each program key relates to the different function icons. Push 1 of the program keys to select the shown function at the bottom of the data screen.

Program Keys	Function Icons	Key Name
1	30.2	**Direct next key**
	^	**Cursor back key**

Program Keys	Function Icons	Key Name
	✓	**Acknowledge key**
2	40.1	**Direct back key**
	∨	**Cursor forward key**
	?	**Help key**
3	»	**Menu overview key**
	⊼	**Top list key**
	+/−	**Plus / minus key**
	-	**Minus key**
	- ↵	**Minus enter key**
	☼-	**Darker display key**
4	O—□	**Enter password key**
	O/—□	**Cancel password key**
	⊻	**End list key**
	0....9	**Number key**
	+	**Plus key**
	+ ↵	**Plus enter key**
	☼+	**Brighter display key**
5	<	**Previous screen key**
	C	**Cancel key**
6	>	**Next screen key**
	↵	**Enter key**

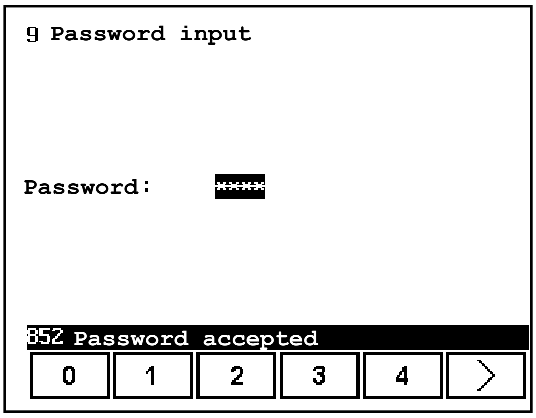
4.3.7 Entering the Password

Orientation The description of the data screens shows which type of authorization is required for an intended action.

Authorization Level	Authority	Factory Password
Level 1 (password is not necessary).	The operating personnel can read the operating status of the machine.	No password
Level 2 (password is necessary)	The shift supervisor must enter the password to change the operating values of the machine. The service engineer must enter the password to examine the machine.	1001
Master level (Password is necessary)	The current passwords can be changed	1423

1. Tap the main screen key.
2. Tap the enter password key.

   ⇨ The data screen 9 **Password input** is shown.



9 Password input

Password: ****

852 Password accepted

Figure 32: Data screen 9 Password input

3. Refer to the table above to determine the authorization level.
4. To enter the 4-digit password in the field **Password**, tap the program keys or the numeric keys.
5. If the password entered is incorrect, tap the cancel key and enter the correct password again.
6. Tap the main screen key.

   ⇨ The icon 1 is shown in the data screen.

   ⇨ The authorization level is logged in.

⇨ The message **Password accepted** is shown.

7. If the message **Password error** is shown, enter the correct password again.

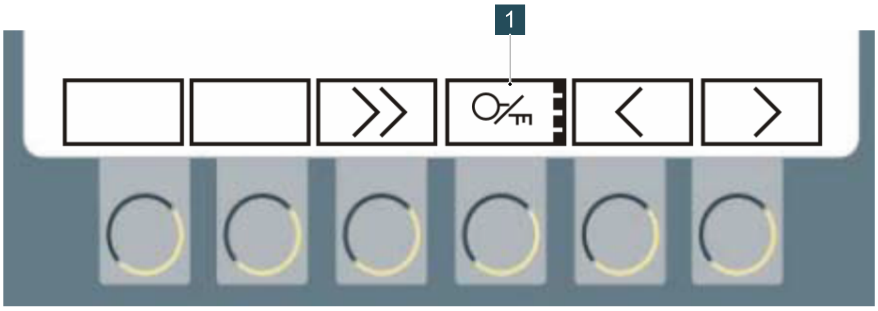


Figure 33: Password program key

Result The password is entered.

4.3.8 Canceling the Password Authorization

Orientation To prevent the unauthorized persons to change settings of the machine or to do the function test of the machine, the password authorization is to be canceled.

1. Tap the main screen key.
2. To cancel the password authorization, tap the cancel password key.

⇨ When the enter password key is shown, the password authorization is canceled.

Result The password authorization is canceled.

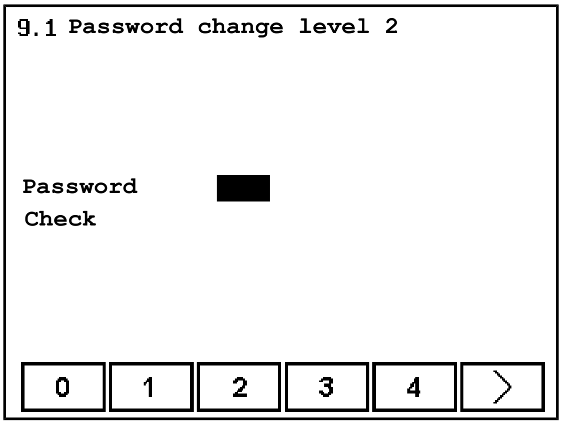
4.3.9 Changing the Password

Orientation The password of each authorization level can be given or changed. The master password can also be changed.

Authorization	
Password: Level 1	Read
Password: Level 2	Configuration, maintenance, tests
Password: Level – master	Changing passwords

1. Enter the master level password.

⇨ The data screen 9.1 is shown.



9.1 Password change level 2

Password

Check

Figure 34: Data screen 9.1

2. To select the correct authorization level, tap the next screen key.
3. Enter the new password in the field **Password**.
4. Enter the new password again in the field **Check**.
   ⇨ The message **Password changed** is shown.
5. Make sure that the valid numbers for the password are 0 – 4.

Result The password is changed.

4.3.10 Changing the Language

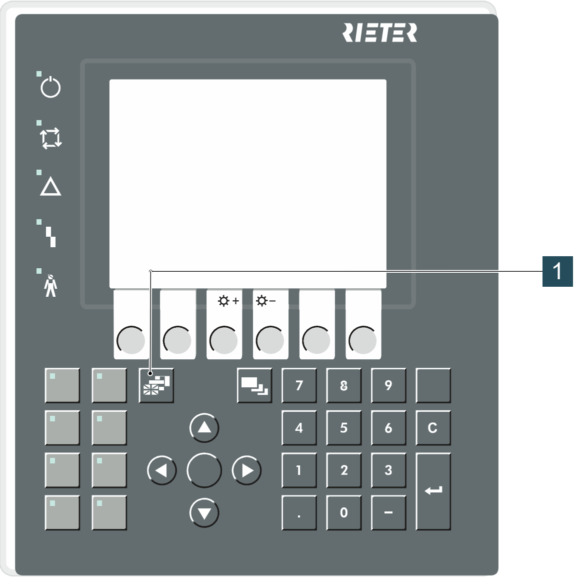


Figure 35: Language

1. To change the screen language, tap the language selection key 1.
   ⇨ The language is changed to the next active language.

2. If the desired language does not show, select the language. See *Selecting the Languages ▶ 161*

Result The language is changed.

4.3.11 Adjusting the Screen Brightness

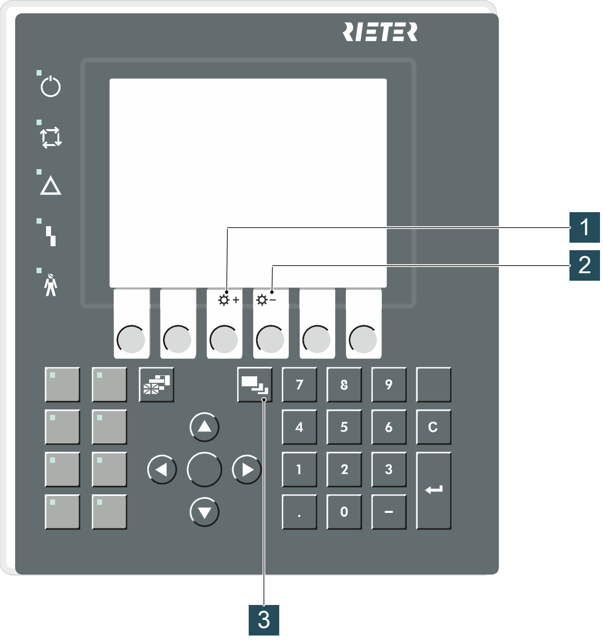


Figure 36: Operating unit

1. To increase the screen brightness, tap the main screen key 3 and brighter display key 1 at the same time.
2. To decrease the screen brightness, tap the main screen key 3 and darker display key 2 at the same time.

Result The screen brightness is adjusted.

4.3.12 Doing the Acknowledgment of the Faults and the Warning Messages

Orientation When the faults or warning messages are shown in the main data screen, the operator needs to find the solution to the fault first.

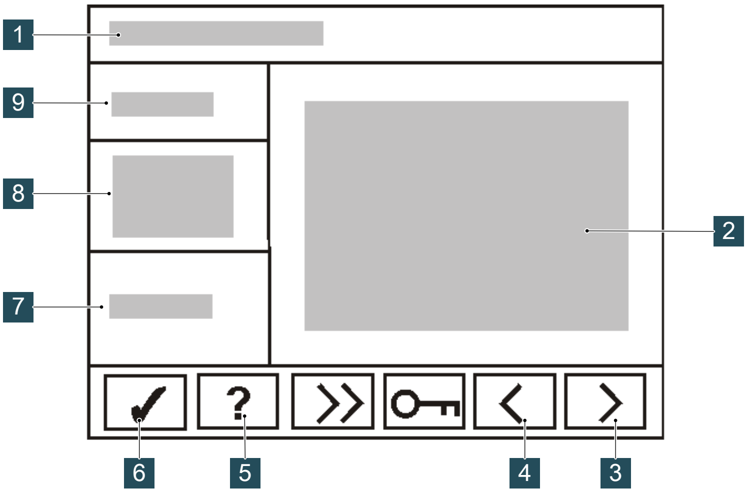


Figure 37: Data screen of messages

1	Display of alarm text	2	The accurate location of the fault at the machine
3	Next screen key	4	Previous screen key
5	Help key	6	Acknowledge key
7	Number of messages	8	The general location of the fault at the machine
9	The message code		

1. Tap the help key.
   - ⇨ Help text with information about the causes and remedy is shown.
2. Correct the faults at the machine.
   - ⇨ The acknowledge key is shown.
3. Tap the acknowledge key.
4. Tap the next screen key or the previous screen key to see other faults.
5. Correct all faults and warning messages.
   - ⇨ The fault LED goes off.
   - ⇨ The machine is ready for operation.

Result The faults and warning messages are acknowledged.

4.3.13 Showing a Data Screen

1. To go to the menu overview, tap the menu overview key 1.

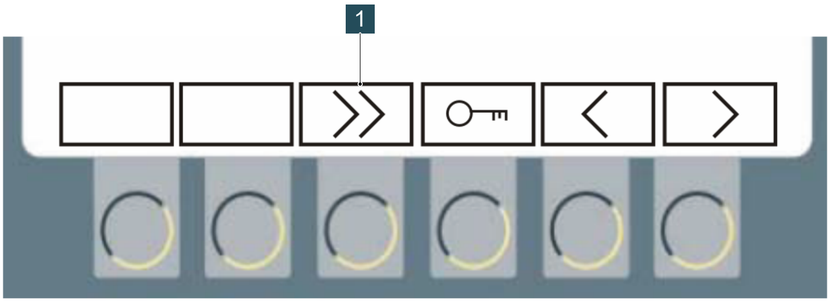


Figure 38: Menu overview icon

2. To select a menu, tap the cursor back key 2 or the cursor forward key 3.

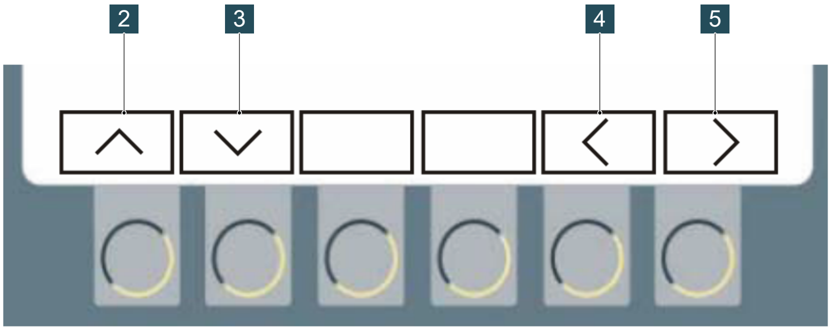


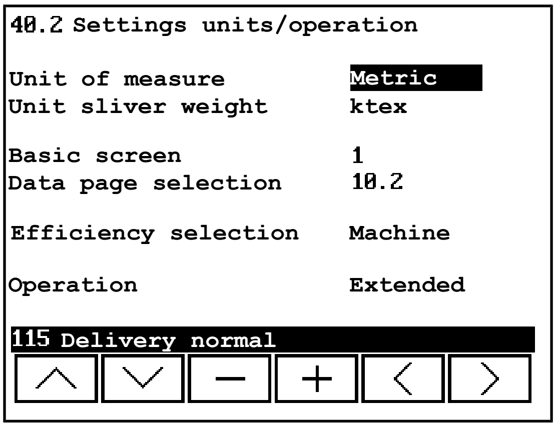
Figure 39: Cursor icon

3. To go to a necessary data screen in the selected menu, tap the previous screen key 4 or the next screen key 5.

Result The data screen is shown.

4.3.14 Going Directly to a Data Screen

Orientation A data screen that is used frequently can go directly through the main menu. An example shown that follow is for setting the data screens 30.1 as the direct navigation.



```
40.2 Settings units/operation

Unit of measure            Metric
Unit sliver weight         ktex

Basic screen               1
Data page selection        10.2

Efficiency selection       Machine

Operation                  Extended

115 Delivery normal
```

Figure 40: Data screen 40.2

Important information:

- In the field **Operation**, if **Extended** is selected, the extended data screens (xx.3x) will show. See *Extended Data Screens ▶ 135*
- In the field **Operation**, if **Standard** is selected, the extended data screens (xx.3x) will not show.

1. Go to the data screen 40.2 **Settings units/operation**.
2. Select the field **Data page selection**.
3. To set a data screen number in the field **Data page selection** for which the direct selection is necessary, tap the plus key or minus key.
4. To go to the data screen directly, tap the key below the icon 1.

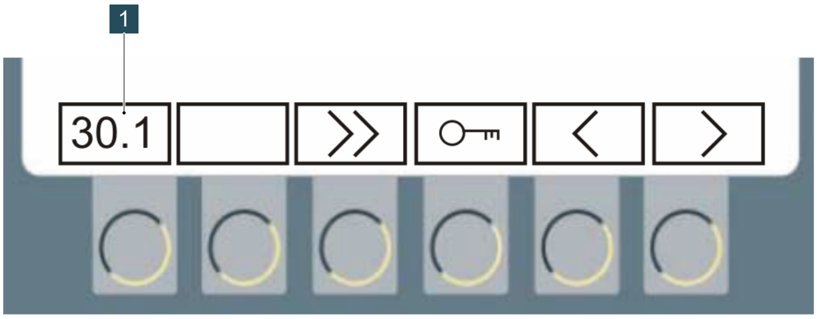


Figure 41: Direction navigation icon

⇨ The data screen 30.1 **Information machine** is shown.

Result The user goes to a data screen directly.

4.3.15 Showing the Most-Recently Used Data Screen

Orientation By tapping the direct back key of the overview screen, the previous data screen (i.e. the one most recently displayed) can be brought up again. The example shown below is data screen 50.2.

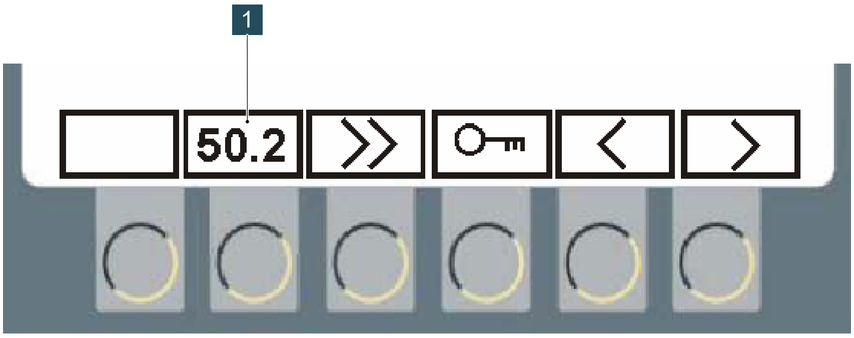


Figure 42: Recently-accessed data screen

1. To go to the recently accessed data screen, tap the direct back key 1.

Result The most-recently used data screen is shown.

4.3.16 Changing the Values in a Data Screen

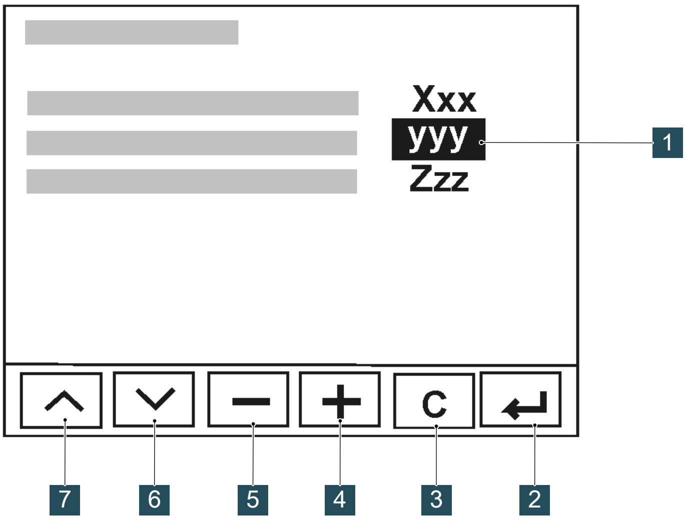


Figure 43: Data screen

Prerequisites Make sure that the criteria are obeyed:

✓ The password is entered.

1. To move the cursor to the correct line 1, tap the cursor back key 7 or the cursor forward key 6.
2. To increase the value of a parameter, tap the plus key 4.
3. To decrease the value of a parameter, tap the minus key 5.
4. To enter the value directly, tap the numeric keys.
5. To delete the incorrect entered value, tap the cancel key 3.
   - ⇨ The initial value is shown again.
   - ⇨ The cancel key 3 is shown only for the values that can be edited.
6. To do the confirmation of the entered value, tap the enter key 2.
   - ⇨ The new value is stored immediately.

Result The values are changed in the data screen.

4.4 Structure of the Data Screen

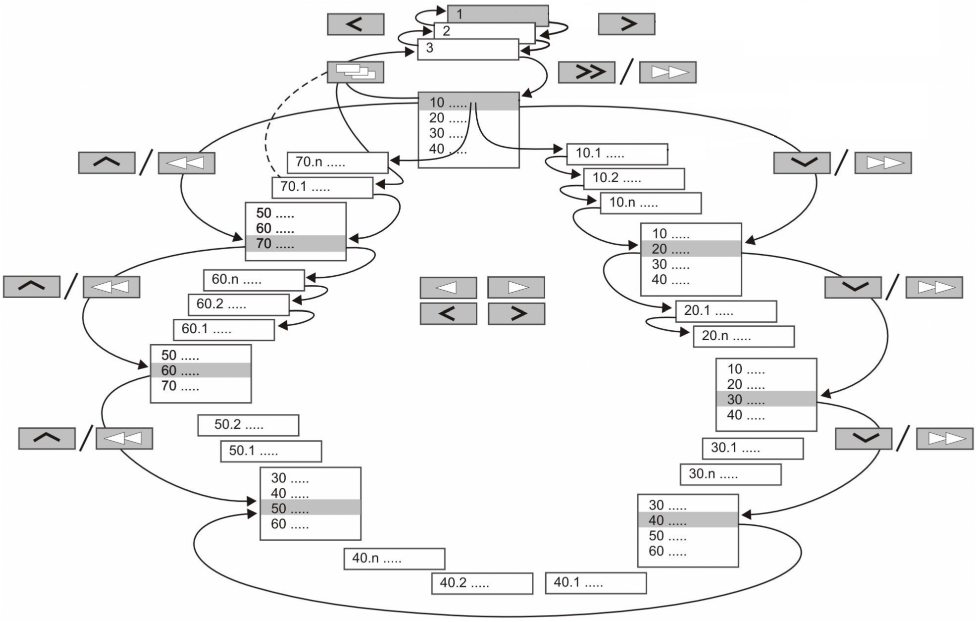


Figure 44: Structure of the data screen

The screen indicates which keys can be used to select the screens on the display unit. There are 3 different screen levels:

1. Main screen: Either an overview screen or a message indicating a fault is displayed. There may be several overview screens, or several faults which are simultaneously present.
2. Menu overview: Data displays are grouped in menus. The menus can be selected from the menu overview.
3. Data screen: In data screens, actual values can be displayed, settings altered or test functions activated.

4.5 List of the Data Screens

Screen Number	Description	Page
Menu **10 Production set values**		*Refer to ▸ 82*
10.1	**Production set values extended**	*Refer to ▸ 82*
10.2	**Production sort sliver set values**	*Refer to ▸ 83*
10.3	**Production setpoints options**	*Refer to ▸ 83*
Menu **11 Production actual values**		*Refer to ▸ 84*
11.1	**Production actual values, material**	*Refer to ▸ 84*
11.2	**Production act.values work elements**	*Refer to ▸ 85*

Screen Number	Description	Page
11.3	**Production efficiency/MTBA**	*Refer to ▸ 85*
11.4	**Act. prod. values, suct. vacuum**	*Refer to ▸ 86*
11.5	**Prodn.actual values batt graphic**	*Refer to ▸ 87*
11.31	**Prod. act. val. reg. sliver/deliv.**	*Refer to ▸ 136*
11.32	**Prod. act. val. reg. Sga (batt)**	*Refer to ▸ 137*
11.33	**Prod. act. values reg. chute/sag**	*Refer to ▸ 138*
11.34	**Prod.act.values work elements ext.**	*Refer to ▸ 138*
Menu **12 Production shift data**		*Refer to ▸ 88*
12.1	**Production current shift**	*Refer to ▸ 88*
12.2	**Production last shifts**	*Refer to ▸ 88*
12.3	**Events shifts**	*Refer to ▸ 89*
12.4	**Production total shifts**	*Refer to ▸ 89*
12.5	**Events total shifts**	*Refer to ▸ 90*
12.6	**Delete shifts**	*Refer to ▸ 90*
Menu **20 Quality data actual values, card**		*Refer to ▸ 91*
20.1	**Q-Data actual values card A%**	*Refer to ▸ 91*
20.2	**Q-data act. values card CV%..CV100**	*Refer to ▸ 92*
20.3	**Q-data act. values card spectrogram**	*Refer to ▸ 92*
20.4	**Quality, actual values, card, slubs**	*Refer to ▸ 93*
20.30	**Q-date actual values card feed CV**	*Refer to ▸ 139*
20.31	**Q-data, act. val., card feed spec.**	*Refer to ▸ 140*
Menu **22 Quality data set values, card**		*Refer to ▸ 93*
22.1	**Q-data set values card A%**	*Refer to ▸ 93*
22.2	**Q-data set values card CV%**	*Refer to ▸ 94*
22.3	**Q-data set values CV% corrc.**	*Refer to ▸ 95*
22.4	**Q-data set values card spectrogr.**	*Refer to ▸ 95*
22.5	**Qual., target values, card, slubs**	*Refer to ▸ 96*
Menu **30 Information general**		*Refer to ▸ 97*
30.1	**Information machine**	*Refer to ▸ 97*
30.2	**Information freq. converter**	*Refer to ▸ 97*

30.30	**Information converter ext.**	*Refer to ▶ 141*
30.31	**Information CAN slaves**	*Refer to ▶ 142*
30.32	**Info overview digital inputs**	*Refer to ▶ 142*
30.33	**Info overview digital outputs**	*Refer to ▶ 143*
Menu **31 Information logs, statistics**		*Refer to ▶ 98*
31.1	**Info events occurred**	*Refer to ▶ 98*
31.2	**Info current malfunctions**	*Refer to ▶ 99*
31.3	**Info current warnings**	*Refer to ▶ 99*
31.4	**Info current maintenance warnings**	*Refer to ▶ 100*
31.5	**Info events maintenance**	*Refer to ▶ 101*
31.6	**Info delete lists**	*Refer to ▶ 101*
31.30	**Info exception list**	*Refer to ▶ 143*
31.31	**Info statistic events**	*Refer to ▶ 144*
31.32	**Info Exception Statistik D95K**	*Refer to ▶ 144*
Menu **40 Settings, general**		*Refer to ▶ 101*
40.1	**Settings date/time**	*Refer to ▶ 102*
40.2	**Settings units/operation**	*Refer to ▶ 102*
40.3	**Settings languages**	*Refer to ▶ 103*
Menu **41 Settings, machine**		*Refer to ▶ 104*
41.1	**Settings card delivery**	*Refer to ▶ 104*
41.2	**Settings feed/cylinder**	*Refer to ▶ 105*
41.3	**Settings IGS**	*Refer to ▶ 106*
41.4	**Settings, chute**	*Refer to ▶ 107*
41.30	**Settings extended 1**	*Refer to ▶ 145*
41.31	**Settings extended 2**	*Refer to ▶ 147*
41.32	**Settings extended 3**	*Refer to ▶ 148*
Menu **42 Settings, coiler**		*Refer to ▶ 107*
42.3	**Settings coiler I**	*Refer to ▶ 107*
Menu **43 Settings, configuration**		*Refer to ▶ 109*
43.1	**Machine configuration**	*Refer to ▶ 109*
43.2	**Configuration options**	*Refer to ▶ 110*
43.30	**Reset configuration**	*Refer to ▶ 149*
Menu **50 Configuration, shifts**		*Refer to ▶ 111*

50.1	**Configuration shift selection**	*Refer to* ▸ *111*
50.2	**Configuration shifts shift schedule**	*Refer to* ▸ *112*
Menu **60 Production value groups**		*Refer to* ▸ *113*
60.1	**Value group management**	*Refer to* ▸ *113*
60.2	**Value groups preview machine**	*Refer to* ▸ *114*
60.3	**Value groups preview quality**	*Refer to* ▸ *114*
60.4	**Value groups, preview, feed**	*Refer to* ▸ *115*
60.30	**Value groups preview extended I**	*Refer to* ▸ *149*
60.31	**Value groups preview extended II**	*Refer to* ▸ *150*
60.33	**Value groups preview extend. IV**	*Refer to* ▸ *151*
Menu **70 Maintenance clothings**		*Refer to* ▸ *115*
70.1	**Maintenance clothings machine I**	*Refer to* ▸ *115*
70.2	**Maintenance clothings machine II**	*Refer to* ▸ *116*
70.3	**Maintenance clothings IGS**	*Refer to* ▸ *117*
Menu **80 Operating mode/Tests**		*Refer to* ▸ *118*
80.1	**Operating mode switchover**	*Refer to* ▸ *118*
Menu **81 Grind/put on**		*Refer to* ▸ *119*
81.1	**Grind cylinder clothing**	*Refer to* ▸ *119*
81.2	**Grind doffer clothing**	*Refer to* ▸ *119*
81.3	**Servicing, flats, clothing**	*Refer to* ▸ *120*
Menu **82 Test inputs/outputs and covers**		*Refer to* ▸ *121*
82.1	**Test digital inputs**	*Refer to* ▸ *121*
82.2	**Test analog inputs**	*Refer to* ▸ *122*
82.3	**Test digital outputs**	*Refer to* ▸ *122*
82.4	**Test, door saf. devices + watchdog**	*Refer to* ▸ *123*
Menu **83 Test drives**		*Refer to* ▸ *124*
83.1	**Test feed roll chute**	*Refer to* ▸ *124*
83.2	**Test opening roll chute**	*Refer to* ▸ *125*
83.3	**Test fan chute**	*Refer to* ▸ *125*
83.4	**Test licker-in**	*Refer to* ▸ *126*
83.5	**Test cylinder**	*Refer to* ▸ *126*
83.6	**Test, flats drive**	*Refer to* ▸ *127*
83.7	**Test, clearer roller, flats**	*Refer to* ▸ *127*

83.8	**Test cleaner brush**	*Refer to ▸ 128*
83.9	**Test feed roll card**	*Refer to ▸ 128*
83.10	**Test doffer card**	*Refer to ▸ 129*
83.11	**Test delivery card**	*Refer to ▸ 129*
83.12	**Test main motor coiler**	*Refer to ▸ 130*
Menu **84 Test/Programming devices**		*Refer to ▸ 131*
84.1	**Test control unit**	*Refer to ▸ 131*
84.2	**Test converter**	*Refer to ▸ 131*

Menu **85 Test optional devices**	*Refer to ▸ 132*

85.1	**Test IGS-classic**	*Refer to ▸ 132*
85.2	**Test IGS-top**	*Refer to ▸ 133*
85.7	**Test mote knife licker-in**	*Refer to ▸ 134*

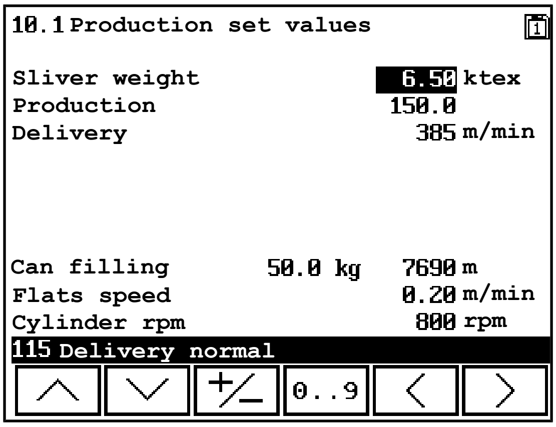
4.5.1 Menu 10 Production Set Values

Group of data screens for entry of the most important production values.

The number in the frame top right on the data screens displays the current production values group. The current production values group can be selected in menu 60.

4.5.1.1 Data Screen 10.1 Production Set Values

The following values are configured in this data screen.



```
10.1 Production set values                1

Sliver weight                  6.50 ktex
Production                     150.0
Delivery                         385 m/min



Can filling          50.0 kg    7690 m
Flats speed                     0.20 m/min
Cylinder rpm                     800 rpm
115 Delivery normal
```

Figure 45: Data screen 10.1 Production set values

Sliver weight : See *Adjusting the Sliver Weight ▸ 208* and *Doing the Configuration of the Machine Equipment ▸ 156*

Production: See *Entering the Production Quantity* ▸ *209*

Delivery: See *Entering the Production Quantity* ▸ *209*

Can filling : See *Entering the Can Fill Quantity* ▸ *209*

Flats speed : See *Adjusting the Card Flat Speed* ▸ *265*

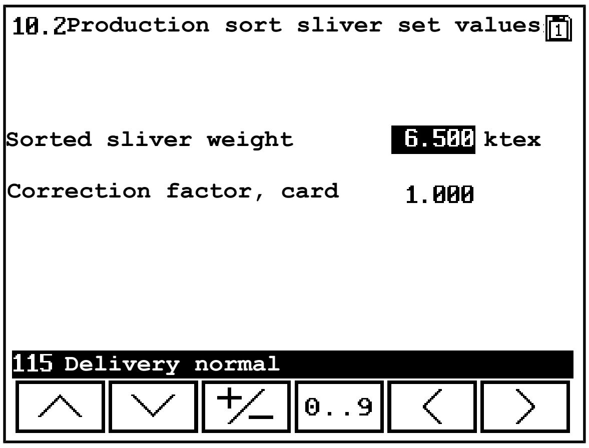
Cylinder rpm : See *Adjusting the Cylinder Speed* ▸ *210*

4.5.1.2 Data Screen 10.2 Production Sort Sliver Set Values

Conditions

- Password level 2

In this data screen, the scanner in the delivery of the card is adjusted according to the weighed sliver weight.



```
10.2Production sort sliver set values

Sorted sliver weight          6.500 ktex
Correction factor, card        1.000

115 Delivery normal
```

Figure 46: Data screen 10.2 Production sort sliver set values

Sorted sliver weight : See *Correcting the Sliver Weight* ▸ *344*

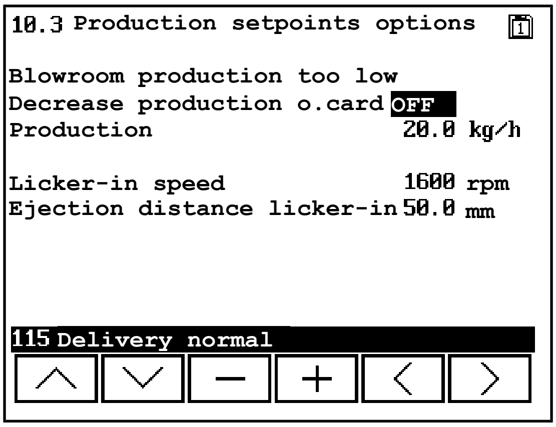
Correction factor, card : See *Correcting the Sliver Weight* ▸ *344*

4.5.1.3 Data Screen 10.3 Production setpoints options

Conditions

- Password level 2

This data screen is used to set values that affect options.



10.3 Production setpoints options

Blowroom production too low
Decrease production o.card OFF
Production 20.0 kg/h

Licker-in speed 1600 rpm
Ejection distance licker-in 50.0 mm

115 Delivery normal

Figure 47: Data Screen 10.3 Production setpoints options ***(Option: Licker-in drive with frequency converter)***

Blowroom production too low:

If the preceding process transmits the signal "minimum production underranged", the cards automatically lower the production.

It is recommended to switch on this function.

Likewise the "lowered" production capacity can be defined.

Licker-in speed: See *Adjusting the Licker-In Speed ▸ 210*

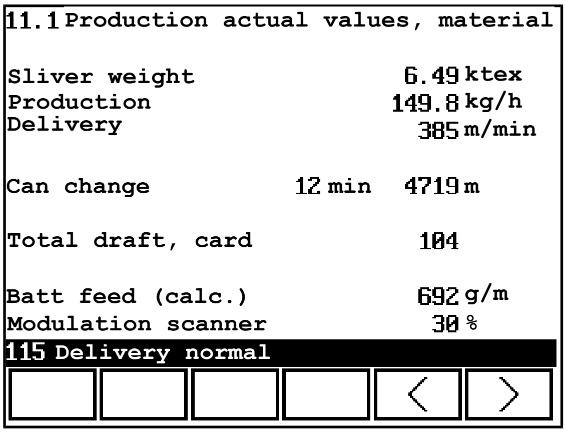
Ejection dist. licker-in : See *Adjusting the Extraction Opening of the Mote Knife ▸ 238*

4.5.2 Menu 11 Production Actual Values

Group of data screens for display of actual values.

4.5.2.1 Data Screen 11.1 Production actual values, material

In this data screen the actual production values are shown.



11.1 Production actual values, material

Sliver weight 6.49 ktex
Production 149.8 kg/h
Delivery 385 m/min

Can change 12 min 4719 m

Total draft, card 104

Batt feed (calc.) 692 g/m
Modulation scanner 30 %

115 Delivery normal

Figure 48: Data Screen 11.1

Batt feed (calc.) : Weight of the feed batt (calculated)

Weight of feed batt = sliver weight x total draft + weight of waste.

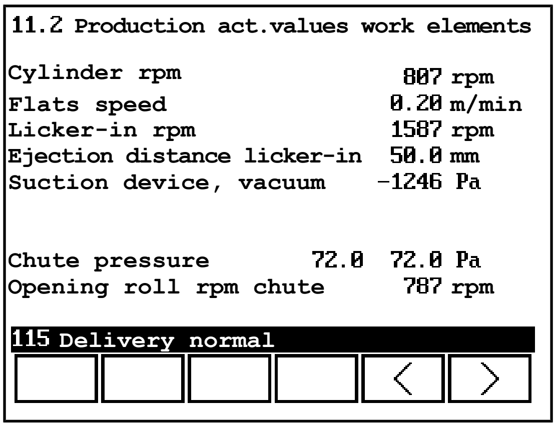
These values are determined over the last 30 seconds.

Modulation scanner : See *Examining the Modulation of the Measuring Device ▸ 236*

4.5.2.2 Data Screen 11.2 Production act.values work elements

In this data screen the actual values of the set parameters are shown.

Values cannot be changed.



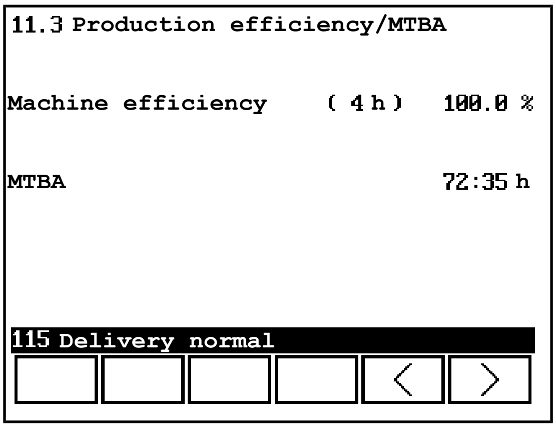
```
11.2 Production act.values work elements

Cylinder rpm                    807 rpm
Flats speed                    0.20 m/min
Licker-in rpm                  1587 rpm
Ejection distance licker-in    50.0 mm
Suction device, vacuum        -1246 Pa


Chute pressure          72.0   72.0 Pa
Opening roll rpm chute          787 rpm

115 Delivery normal
```

Figure 49: Data Screen 11.2 Production act.values work elements

4.5.2.3 Data Screen 11.3 Production Efficiency / MTBA

In this data screen the values concerning running behavior are shown.

No values can be changed here.



```
11.3 Production efficiency/MTBA


Machine efficiency    ( 4 h )   100.0 %


MTBA                            72:35 h





115 Delivery normal
```

Figure 50: Data Screen 11.3 Production efficiency/MTBA

Machine efficiency :

The machine efficiency again reflects the machine availability during these hours. The time in which the machine was not used without a queued fault is not included in the calculation.

In data screen 40.2 you can configure the efficiency that should be shown here.

Efficiency type selection:

- **Production**

The production efficiency indicates the ratio of the actual production of the machine to the theoretically-possible production. The time in which the machine was switched off is included in the calculation.

- **Machine**

The machine efficiency reflects the machine availability during these hours. The time in which the machine was not used without a queued fault is not included in the calculation.

Machine efficiency : See *Adjusting the Efficiency Calculation and the Efficiency Display ▸ 160*

MTBA

The calculation occurs on a rolling basis over 7 days. During this time, the normal runtime is continuously compared with the number of faults that occurred, and evaluated.

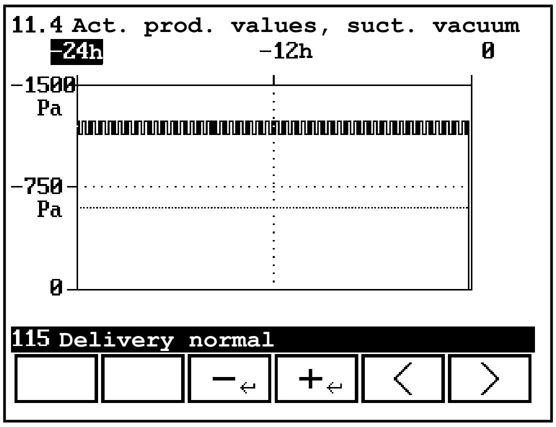
Before an event the machine had produced for at least 50 seconds with normal production. At slow speed, or at runtimes shorter than 50 seconds after fault rectification, a standstill is not taken into account.

If, during this time period, many interruptions caused by the machine are recorded in a single day, these stops will be included in the calculation after the sixth day. Only thereafter are they dropped from the calculation.

4.5.2.4 Data Screen 11.4 Act. prod. values, suct. vacuum

In this data screen the gradient of the vacuum of the waste extraction of the card is shown.

The lower straight line shows the switch-off point.



11.4 Act. prod. values, suct. vacuum

115 Delivery normal

Figure 51: Data Screen 11.4 Act. prod. values, suct. vacuum

Time base for the diagram

The time base (24 h / 8 h / 30 min) can be changed without any loss of data resulting from the Changeover. The pressure gradient diagram is shown in the selected time base.

4.5.2.5 Data Screen 11.5 Prodn.actual values batt graphic

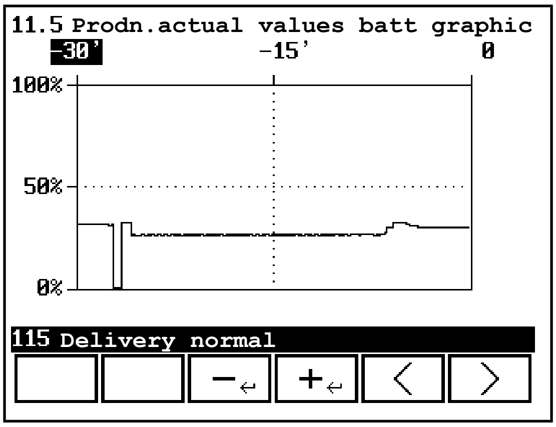
Conditions

- Password level 2

This data screen shows the gradient of the batt weight measured in real time by the scanner in the infeed on the feed trough.

A uniform batt weight is an important prerequisite for a high quality card sliver. Consequently this diagram is a reliable source for optimizing the system.

This diagram shows the quality of the entire preceding process at a glance. Thus it provides important information concerning events or errors in the blowroom.



11.5 Prodn.actual values batt graphic

115 Delivery normal

Figure 52: Data Screen 11.5 Prodn.actual values batt graphic

Time base for the diagram

The time base (24 h / 8 h / 30 min) can be changed without any loss of data resulting from the changeover.

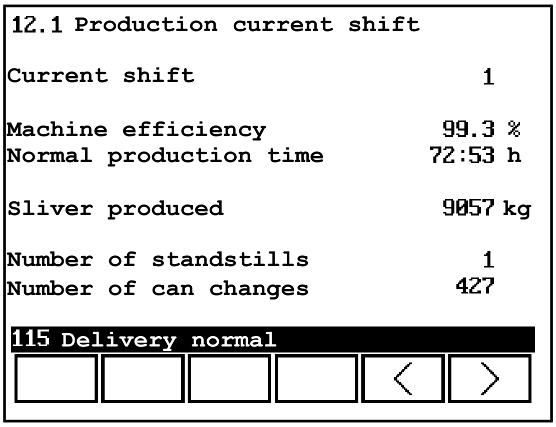
The “batt weight gradient” diagram is shown in the selected time base.

4.5.3 Menu 12 Production Shift Data

Group of data screens for display of actual shift data.

4.5.3.1 Data Screen 12.1 Production current shift

In this data screen the shift counters of the selected shift are shown.



```
12.1 Production current shift

Current shift                      1

Machine efficiency              99.3 %
Normal production time         72:53 h

Sliver produced                 9057 kg

Number of standstills              1
Number of can changes            427

115 Delivery normal
```

Figure 53: Data Screen 12.1 Production current shift

Current shift: The shift data of the current shift is continuously added up and saved. If another layer is selected, the data for the previous layer remains in abeyance until the same layer is again selected.

In data screen 40.2 you can configure the efficiency that should be shown here.

Efficiency type Selection:

- **Production**: The production efficiency indicates the ratio of the actual production of the machine to the theoretically-possible production. The time in which the machine was switched off is included in the calculation.
- **Machine**: The machine efficiency reflects the machine availability during these hours. The time in which the machine was not used without a queued fault is not included in the calculation.

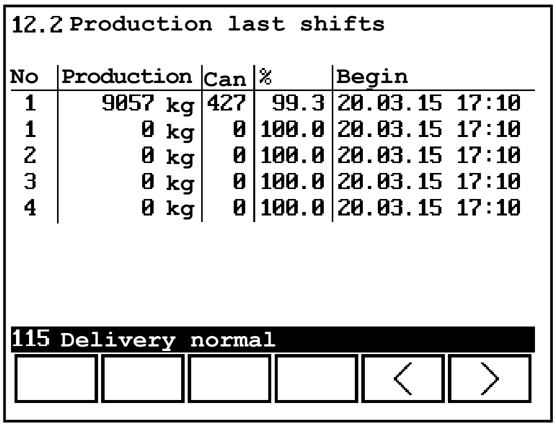
Machine efficiency: see *Adjusting the Efficiency Calculation and the Efficiency Display ▸ 160*

Normal production time: Displays the time during which the system effectively produced in this shift.

4.5.3.2 Data Screen 12.2 Production Last Shifts

In this data screen production and efficiency per shift are shown.

Overview of the production and the efficiency of the completed shifts and the currently active shift.



12.2 Production last shifts

No	Production	Can	%	Begin
1	9057 kg	427	99.3	20.03.15 17:10
1	0 kg	0	100.0	20.03.15 17:10
2	0 kg	0	100.0	20.03.15 17:10
3	0 kg	0	100.0	20.03.15 17:10
4	0 kg	0	100.0	20.03.15 17:10

115 Delivery normal

Figure 54: Data Screen 12.2 Production last shifts

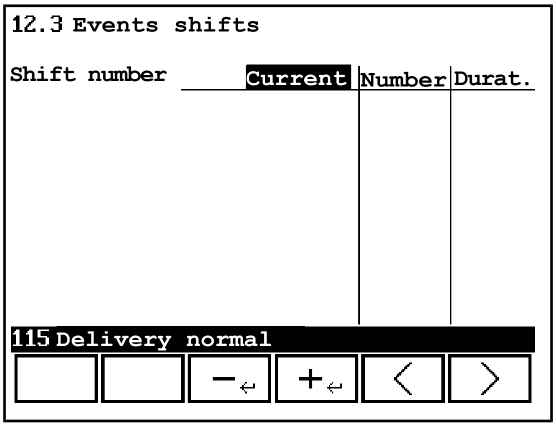
Production

First line: Data of the shift that is currently being worked.

Second line: Data for the shift that was worked before the current shift.

4.5.3.3 Data Screen 12.3 Events shifts

In data screen 12.3 production and efficiency per shift are shown. Events are faults that have caused an interruption of production.



12.3 Events shifts

Shift number Current	Number	Durat.

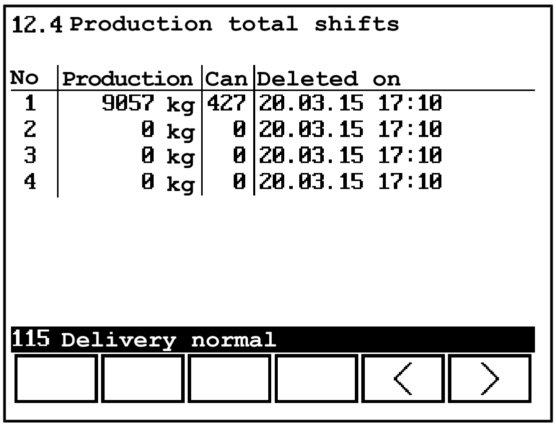
115 Delivery normal

Figure 55: Data Screen 12.3 Events shifts

Shift number: Display of the number of faults that caused an interruption in production. The events are sorted related to frequency and are displayed for each shift.

4.5.3.4 Data Screen 12.4 Production total shifts

In this data screen, deleted sums from the current shift counter are shown.



12.4 Production total shifts

No	Production	Can	Deleted on
1	9057 kg	427	20.03.15 17:10
2	0 kg	0	20.03.15 17:10
3	0 kg	0	20.03.15 17:10
4	0 kg	0	20.03.15 17:10

115 Delivery normal

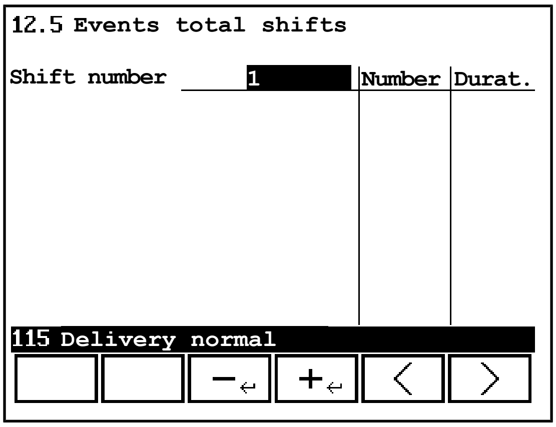
Figure 56: Data Screen 12.4 Production total shifts

Production: Summation counter of the production of a pre-defined shift since a given deletion date.

4.5.3.5 Data Screen 12.5 Events Total Shifts

In this data screen deleted events from the actual shift counter are shown.

The entire set of faults since the last delete date that caused an interruption in production, are shown for each shift.



12.5 Events total shifts

Shift number 1

	Number	Durat.

115 Delivery normal

Figure 57: Data Screen 12.5 Events total shifts

Shift number :

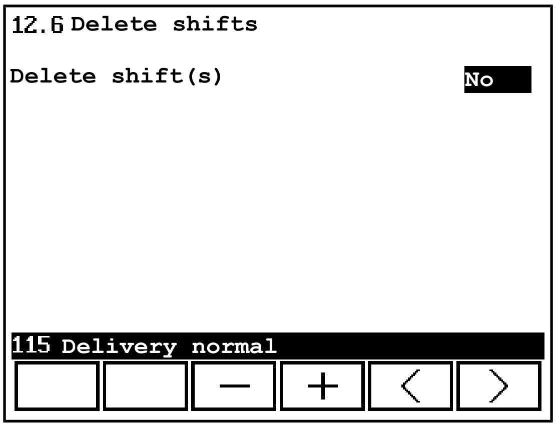
Select the shift number for which the data should be shown.

4.5.3.6 Data Screen 12.6 Delete Shifts

Conditions

– Password level 2

In this data screen, each individual shift, or all configured shifts can be deleted at the same time.


12.6 Delete shifts

Delete shift(s) No

115 Delivery normal

Figure 58: Data screen 12.6 Delete shifts

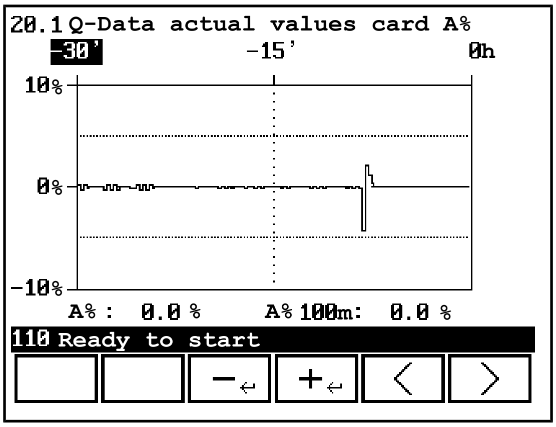
Delete shift(s) : See *Deleting the Shift Data* ▸ *350*

4.5.4 Menu 20 Quality Data Actual Values, Card

Group of data screens for display of the quality data.

4.5.4.1 Data Screen 20.1 Q-Data Actual Values Card A%

In this data screen the difference between the actual value and the setpoint of the sliver weight is shown.


20.1 Q-Data actual values card A%

A% : 0.0 %   A% 100m: 0.0 %

110 Ready to start

Figure 59: Data Screen 20.1 Q-Data actual values card A%

Time base for the diagram: The time base (24 h / 8 h / 30 min) can be changed without any loss of data resulting from the changeover.

A diagram is shown with the selected time base.

A%: Calculation after the measured length entered in data screen 22.1.

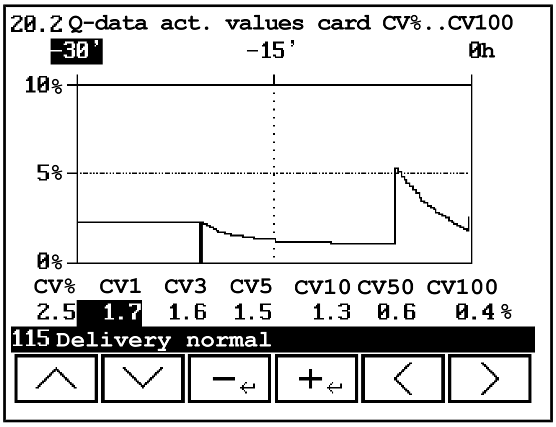
A% 100m: Calculation after 100 m of measured length

(Actual value sliver – Setpoint sliver) x 100 / Setpoint sliver.

A sliver that is too light results in a negative A%100 value.

4.5.4.2 Data Screen 20.2 Q-Data Act. Values Card CV%..CV100

In this data screen the actual quality values for CV% and CV1...100 are shown.



20.2 Q-data act. values card CV%..CV100

CV%	CV1	CV3	CV5	CV10	CV50	CV100
2.5	1.7	1.6	1.5	1.3	0.6	0.4 %

115 Delivery normal

Figure 60: Data Screen 20.2 Q-data act. values card CV%..CV100

Time base for the diagram: The time base (24 h / 8 h / 30 min) can be changed without any loss of data resulting from the changeover.

A diagram is shown with the selected time base.

CV%-CV100: Selectable cut length, for which a figure is displayed.

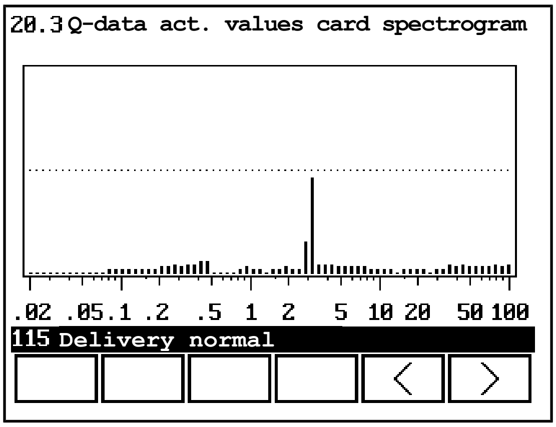
CV Values: Current weight variations of the card sliver (in %) over the programmable reference length (in meters). Enter the reference length in data screen 22.2.

4.5.4.3 Data Screen 20.3 Q-data act. values card spectrogram

In the data screen 20.3, the range of wavelengths in the spectrogram from 0.02 m to100 m is shown.

Wavelengths measured in yards must be converted accordingly (0.914 x ...m).

By tapping the help key the causes are listed. The causes of the errors that are shown in the spectrogram.



20.3 Q-data act. values card spectrogram

115 Delivery normal

Figure 61: Data Screen 20.3 Q-data act. values card spectrogram

Peak in spectrogram: tap the help key to show, in an additional display those machine parts which could cause the errors.

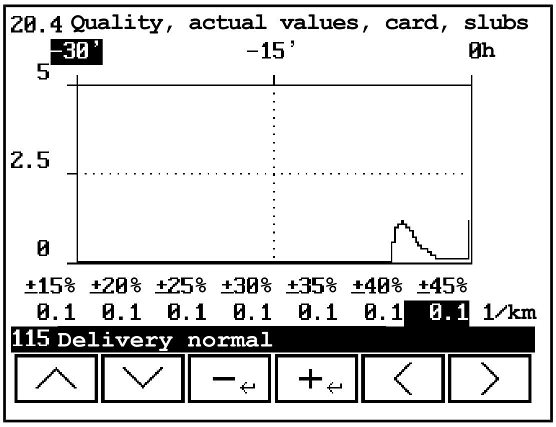
For example, the machine part doffer is shown, which was determined to be the first possible cause of the periodic oscillation.

4.5.4.4 Data Screen 20.4 Quality, actual values, card, slubs

In this data screen the number of slubs in the produced sliver are shown.

At low sliver weight, higher deflections will be shown, which however not faults in the sliver because they are caused naturally.

At low sliver weight select a higher class >±20%.



20.4 Quality, actual values, card, slubs

±15%	±20%	±25%	±30%	±35%	±40%	±45%	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	1/km

115 Delivery normal

Figure 62: Data Screen 20.4 Quality, actual values, card, slubs

Time base for the diagram: The time base (24 h / 8 h / 30 min) can be changed without any loss of data resulting from the changeover.

A diagram is shown with the selected time base.

Range +15% to +45%: Selectable class, for which a figure is shown.

Number of slubs: Show of the current number of slubs per kilometer in the card sliver produced.

4.5.5 Menu 22 Quality Data Set Values, Card

This menu is about production value groups.

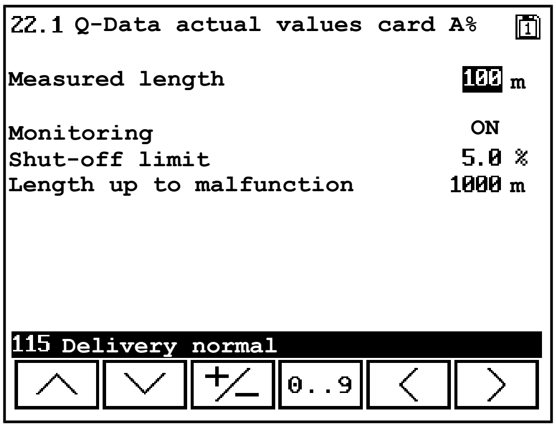
The number in the frame top right on the data screens displays the current production values group. The current production values group can be selected in menu 60.

The integrated card sliver monitor is configuration in menu 22. The signal is measured on the disk rollers on the delivery of the card.

4.5.5.1 Data Screen 22.1 Q-data set values card A%

Conditions – Password level 2

In this data screen, you can specify when the integrated card sliver monitor trips.



```
22.1 Q-Data actual values card A%

Measured length                 100 m

Monitoring                       ON
Shut-off limit                  5.0 %
Length up to malfunction       1000 m

115 Delivery normal
```

Figure 63: Data screen 22.1 Q-Data actual values card A%

Measured length : See *Adjusting the Shut-Off Limit for A%* ▸ *339*

Monitoring : See *Adjusting the Shut-Off Limit for A%* ▸ *339*

Shut-off limit : See *Adjusting the Shut-Off Limit for A%* ▸ *339*

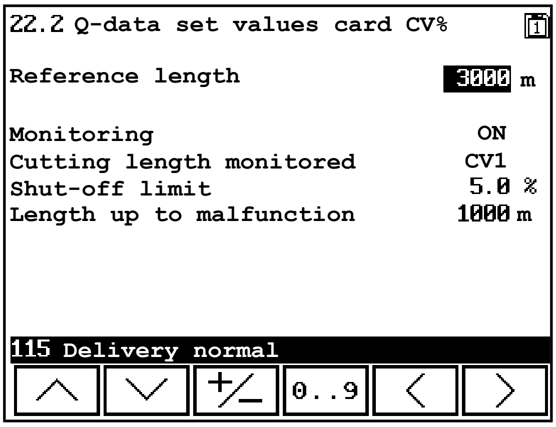
Length up to malfunction : See *Adjusting the Shut-Off Limit for A%* ▸ *339*

4.5.5.2 Data Screen 22.2 Q-data set values card CV%

Conditions

- Password level 2

In this data screen, you can specify when the integrated card sliver monitor trips.



```
22.2 Q-data set values card CV%

Reference length               3000 m

Monitoring                       ON
Cutting length monitored        CV1
Shut-off limit                  5.0 %
Length up to malfunction       1000 m

115 Delivery normal
```

Figure 64: Data screen 22.2 Q-data set values card CV%

Reference length : See *Adjusting the Shut-Off Limit for CV%* ▸ *340*

Monitoring : The monitoring can be switched ON or OFF.

Cutting length monitored : See *Adjusting the Shut-Off Limit for CV%* ▸ *340*

Shut-off limit : See *Adjusting the Shut-Off Limit for CV%* ▸ *340*

Length up to malfunction : See *Adjusting the Shut-Off Limit for CV%* ▸ *340*

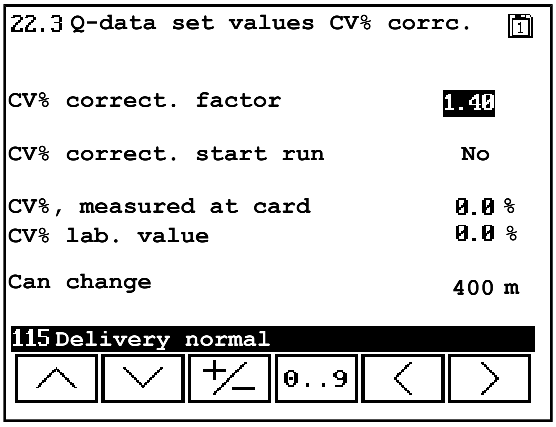
4.5.5.3 Data Screen 22.3 Q-data set values CV% corrc.

Conditions

- Password level 2

The CV% value is determined on the disk roller on the delivery of the card.

In this data screen, the CV% value determined by the card can be compared with the value measured in the laboratory.



```
22.3 Q-data set values CV% corrc.

CV% correct. factor              1.40

CV% correct. start run            No

CV%, measured at card            0.0 %
CV% lab. value                   0.0 %

Can change                       400 m

115 Delivery normal
```

Figure 65: Data Screen 22.3 Q-data set values CV% corrc.

CV% correct. factor: If the software is changed, then this value can be re-entered.

CV% correct. start run : Starting material withdrawal. See *Correcting the CV% Values* ▸ *341*

CV%, measured at card : The CV% value of the card sliver (300 m) produced is shown.

CV% lab. value : Enter the value determined in the laboratory and confirm the entry.

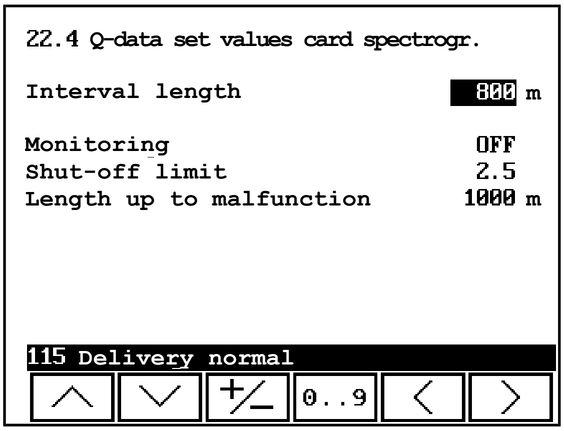
Can change : Length to be produced until the can change (provided that the CV% correction procedure has been started).

4.5.5.4 Data Screen 22.4 Q-data set values card spectrogr.

Conditions

- Password level 2

In this data screen, you can specify when the integrated card sliver monitor trips.



22.4 Q-data set values card spectrogr.

Interval length 800 m

Monitoring OFF
Shut-off limit 2.5
Length up to malfunction 1000 m

115 Delivery normal

Figure 66: Data screen 22.4 Q-data set values card spectrogr.

Interval length : See *Adjusting the Shut-Off Limit for the Spectrogram ▸ 342*

Monitoring : The monitoring can be switched ON or OFF.

Shut-off limit : See *Adjusting the Shut-Off Limit for the Spectrogram ▸ 342*

Length up to malfunction : See *Adjusting the Shut-Off Limit for the Spectrogram ▸ 342*

This data screen is only active without RQM. For settings of RQM see menu 21 and 23.

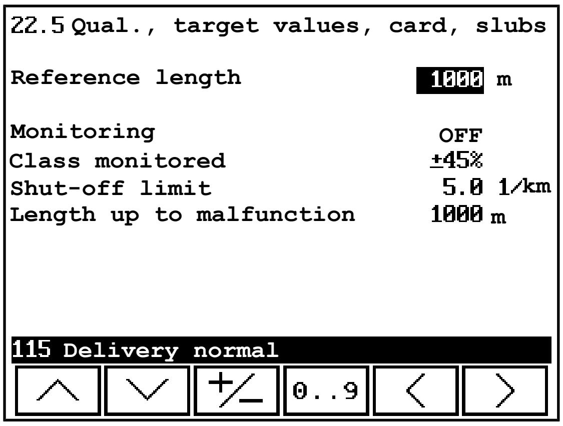
Interval length : See *Adjusting the Shut-Off Limit for the Spectrogram ▸ 342*

4.5.5.5 Data Screen 22.5 Qual., target values, card, slubs

Conditions

- Password level 2

In this data screen, you can specify when the integrated card sliver monitor trips.



22.5 Qual., target values, card, slubs

Reference length 1000 m

Monitoring OFF
Class monitored ±45%
Shut-off limit 5.0 1/km
Length up to malfunction 1000 m

115 Delivery normal

Figure 67: Data screen 22.5 Qual., target values, card, slubs

Reference length : See *Adjusting the Shut-Off Limit for Slubs ▸ 343*

Monitoring : The monitoring can be switched ON or OFF.

Class monitored : The selected class is monitored.

Shut-off limit : See *Adjusting the Shut-Off Limit for Slubs* ▸ *343*

Length up to malfunction : See *Adjusting the Shut-Off Limit for Slubs* ▸ *343*

This data screen is only active without RQM. For settings of RQM see menu 21 and 23.

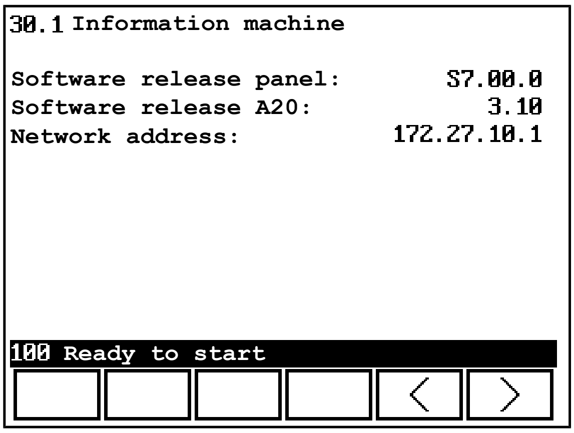
Reference length : See *Adjusting the Shut-Off Limit for Slubs* ▸ *343*

4.5.6 Menu 30 Information General

Group of data screens for display of general information.

4.5.6.1 Data Screen 30.1 Information machine

In this data screen information concerning the software release of the various modules is shown.



```
30.1 Information machine

Software release panel:        S7.00.0
Software release A20:             3.10
Network address:           172.27.10.1

100 Ready to start
```

Figure 68: Data screen 30.1 Information machine

Software release panel :

Information concerning the software release.

Software release A20 :

Information concerning the software release.

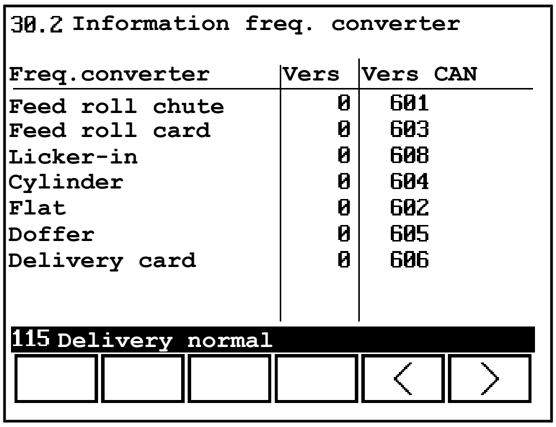
Network address :

The network address for the respective machine is shown if the machines are connected to the higher-level SPIDERweb system.

Configuration in data screen 43.2.

4.5.6.2 Data Screen 30.2 Information freq. converter

In this data screen information concerning the software release of the various modules is shown.

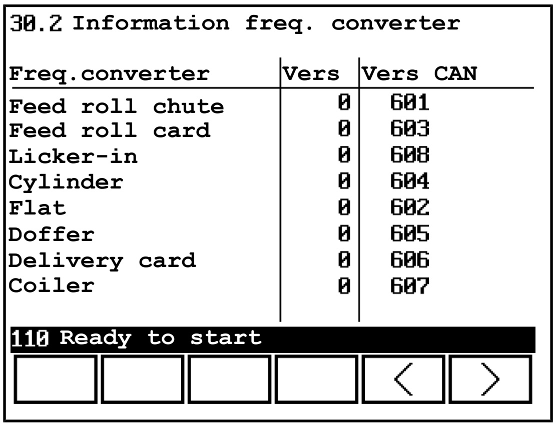


30.2 Information freq. converter

Freq.converter	Vers	Vers CAN
Feed roll chute	0	601
Feed roll card	0	603
Licker-in	0	608
Cylinder	0	604
Flat	0	602
Doffer	0	605
Delivery card	0	606

115 Delivery normal

Figure 69: Data Screen 30.2 Information freq. converter ***(Option: CBA-5)***



30.2 Information freq. converter

Freq.converter	Vers	Vers CAN
Feed roll chute	0	601
Feed roll card	0	603
Licker-in	0	608
Cylinder	0	604
Flat	0	602
Doffer	0	605
Delivery card	0	606
Coiler	0	607

110 Ready to start

Figure 70: Data Screen 30.2 Information freq. converter ***(Option: CBA 1200)***

Freq.converter :

Frequency converter of the selected machine part.

Vers :

Software version of the selected frequency converter.

Can change for the following versions currently 6100.

Vers CAN :

Software version of the CAN adapter for the selected frequency converter.

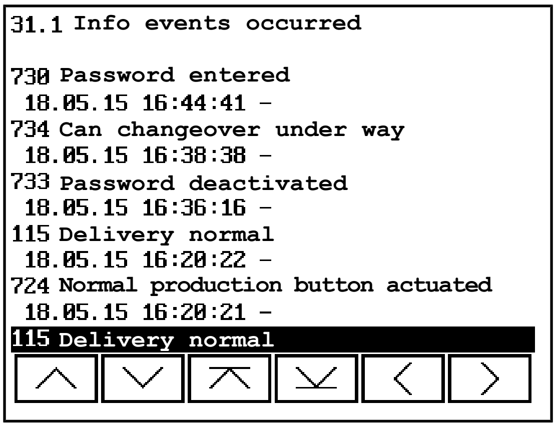
Can change for the following versions currently 3102.

4.5.7 Menu 31 Information Logs, Statistics

Group of data screens for display of statistics settings.

4.5.7.1 Data Screen 31.1 Info events occured

In this data screen the most recent 400 events are shown in chronological order with date and time of occurrence and duration until rectification (h:min:sec).



```
31.1 Info events occurred

730 Password entered
 18.05.15 16:44:41 -
734 Can changeover under way
 18.05.15 16:38:38 -
733 Password deactivated
 18.05.15 16:36:16 -
115 Delivery normal
 18.05.15 16:20:22 -
724 Normal production button actuated
 18.05.15 16:20:21 -
115 Delivery normal
```

Figure 71: Data Screen 31.1 Info events occurred

Two types of entries:

Events: Faults, messages, warnings, maintenance warnings, etc.

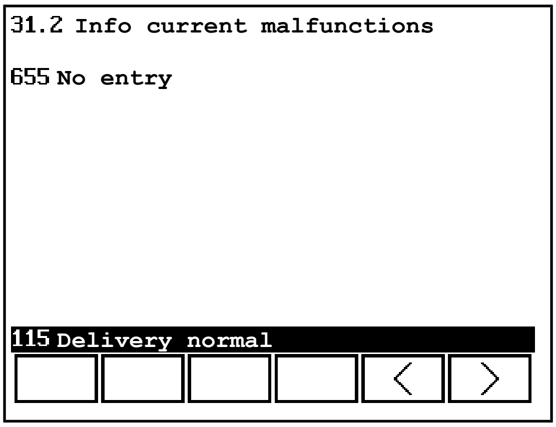
Operator interventions: Operating activities, set point changes, operating mode changes, information on tons produced with one set of clothing, etc.

Deleting the entries:

Entries no longer required are deleted in data screen 31.6.

4.5.7.2 Data Screen 31.2 Info current malfunctions

In this screen a maximum of 20 momentarily queued faults can be shown chronologically with code, message text (summary), date/time of occurrence.

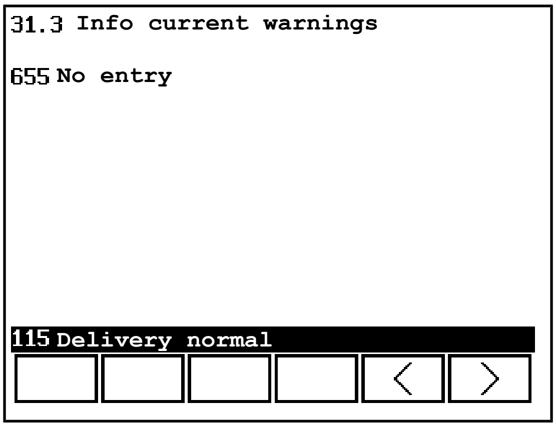


```
31.2 Info current malfunctions

655 No entry

115 Delivery normal
```

Figure 72: Data Screen 31.2 Info current malfunctions

4.5.7.3 Data Screen 31.3 Info current warnings

In this data screen, the currently queued warnings are shown.



31.3 Info current warnings

655 No entry

115 Delivery normal

Figure 73: Data Screen 31.3 Info current warnings

655:

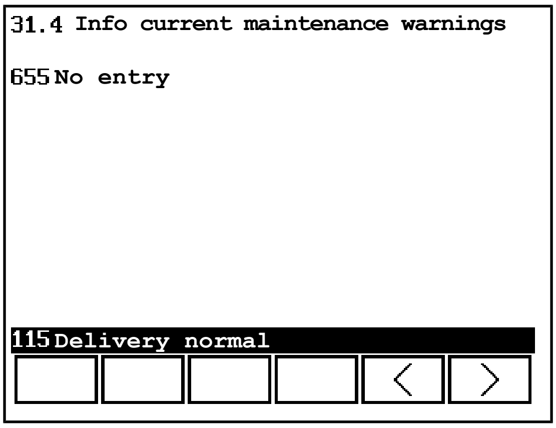
The warnings are shown here chronologically with code, message text (summary) and entry date/time.

Deleting the entries:

Entries no longer required are deleted in data screen 31.6.

4.5.7.4 Data Screen 31.4 Info current maintenance warnings

In this screen a maximum of 20 currently queued maintenance warnings are displayed chronologically with code, message text (summary), date/time of occurrence.



31.4 Info current maintenance warnings

655 No entry

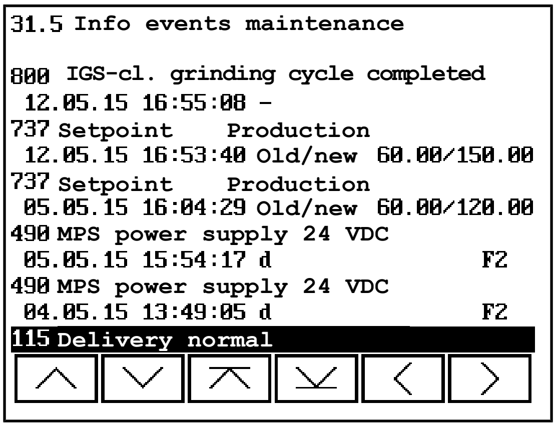
115 Delivery normal

Figure 74: Data Screen 31.4 Info current maintenance warnings

Deleting the entries: Entries no longer required are deleted in data screen 31.6.

4.5.7.5 Data Screen 31.5 Info events maintenance

The last 1200 events that have occurred, such as faults, warnings, maintenance warnings, messages, entries in data screen 70.1, etc. are shown in chronological order with code, message text (summary), date/time of occurrence and duration (h:min:sec).



```
31.5 Info events maintenance

800 IGS-cl. grinding cycle completed
 12.05.15 16:55:08 -
737 Setpoint    Production
 12.05.15 16:53:40 Old/new  60.00/150.00
737 Setpoint    Production
 05.05.15 16:04:29 Old/new  60.00/120.00
490 MPS power supply 24 VDC
 05.05.15 15:54:17 d              F2
490 MPS power supply 24 VDC
 04.05.15 13:49:05 d              F2
115 Delivery normal
```

Figure 75: Data Screen 31.5 Info events maintenance

Two types of entries:

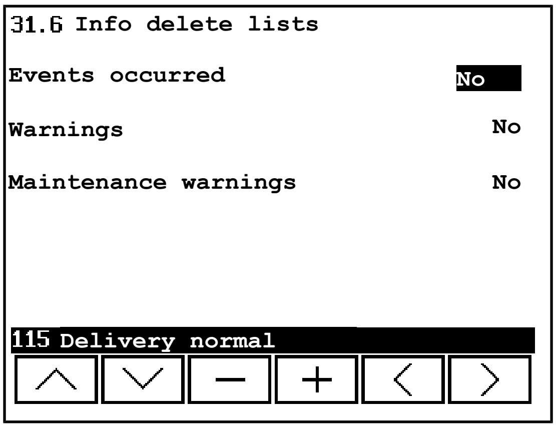
Events: Faults, messages, warnings, maintenance warnings, etc.

Operator interventions: Operating activities, setpoint changes, operating mode changes, information on tonnes produced with one set of clothing, etc.

4.5.7.6 Data Screen 31.6 Info delete lists

Conditions
- – Password level 2

In this data screen the logs in data screens 31.1, 31.3, and 31.4 can be deleted individually.



```
31.6 Info delete lists

Events occurred                     No

Warnings                            No

Maintenance warnings                No




115 Delivery normal
```

Figure 76: Data Screen 31.6 Info delete lists

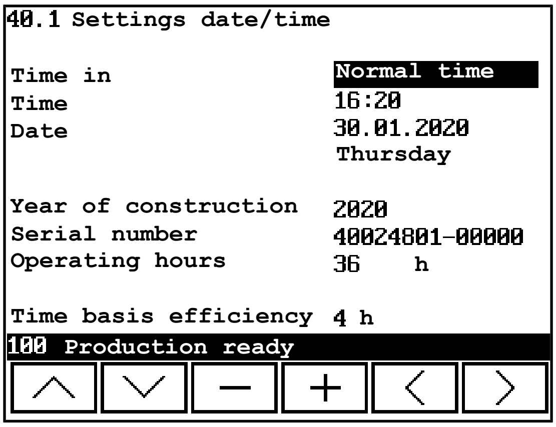
4.5.8 Menu 40 Settings, General

Group of data screens for entry of the general setup values.

4.5.8.1 Data Screen 40.1 Settings date/time

Conditions
- Password level 2

In this data screen general data must be entered.



```
40.1 Settings date/time

Time in                  Normal time
Time                     16:20
Date                     30.01.2020
                         Thursday

Year of construction     2020
Serial number            40024801-00000
Operating hours          36    h

Time basis efficiency    4 h
100 Production ready
```

Figure 77: Data screen 40.1 Settings date/time

Time in : See *Setting the Date and the Time* ▸ *158*.

Time : See *Setting the Date and the Time* ▸ *158*.

Date : See *Setting the Date and the Time* ▸ *158*.

Year of construction : The manufacture year of the machine is shown.

Serial number : The serial number of the machine is shown.

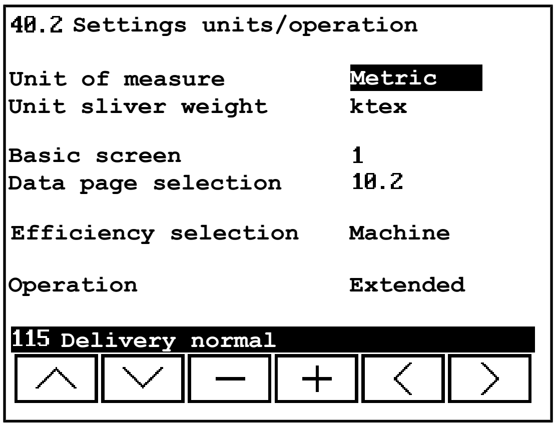
Operating hours : The operating hours are shown (added up since the machine was commissioned).

Time basis efficiency : See *Adjusting the Efficiency Calculation and the Efficiency Display* ▸ *160*.

4.5.8.2 Data Screen 40.2 Settings units/operation

Conditions
- Password level 2

In this data screen units can be configured.



```
40.2 Settings units/operation

Unit of measure          Metric
Unit sliver weight       ktex

Basic screen             1
Data page selection      10.2

Efficiency selection     Machine

Operation                Extended

115 Delivery normal
```

Figure 78: Data screen 40.2 Settings units/operation

Unit of measure : Entering the units. See *Setting the Units of Measurement and the Operation* ▸ *159*

Unit sliver weight : Entering the units. See *Setting the Units of Measurement and the Operation* ▸ *159*

Basic screen : Configuring the display. See *Setting the Units of Measurement and the Operation* ▸ *159*

Data page selection : Configuring the display. See *Setting the Units of Measurement and the Operation* ▸ *159*

Efficiency selection : See *Adjusting the Efficiency Calculation and the Efficiency Display* ▸ *160*

Operation :

Setting the display mode for electronic support. See *Setting the Units of Measurement and the Operation* ▸ *159*

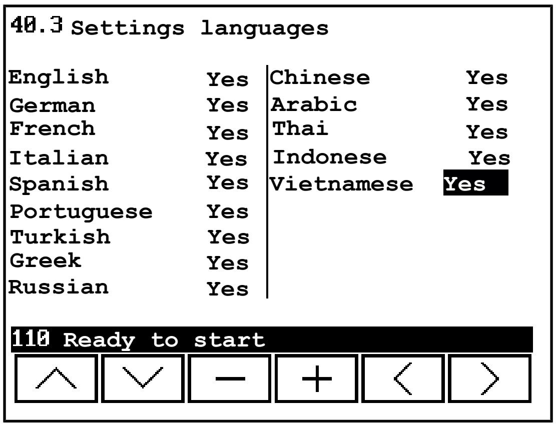
Setting the display mode for production operation. See *Setting the Units of Measurement and the Operation* ▸ *159*

4.5.8.3 Data Screen 40.3 Settings languages

Conditions

– Password level 2

In this data screen the required languages are activated. See *Selecting the Languages* ▸ *161*



40.3 Settings languages

English	Yes	Chinese	Yes
German	Yes	Arabic	Yes
French	Yes	Thai	Yes
Italian	Yes	Indonese	Yes
Spanish	Yes	Vietnamese	Yes
Portuguese	Yes		
Turkish	Yes		
Greek	Yes		
Russian	Yes		

110 Ready to start

Figure 79: Data screen 40.3 Settings languages

4.5.9 Menu 41 Settings, Machine

Group of data screens for entry of the machine-specific setup values.

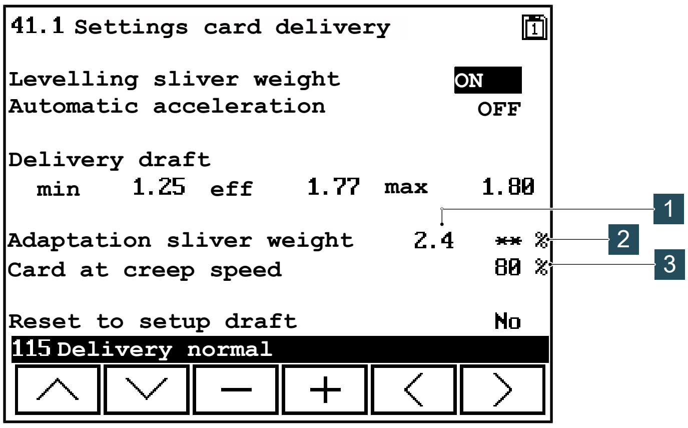
The number in the frame top right on the data screens displays the current production values group. The current production values group can be selected in menu 60.

4.5.9.1 Data Screen 41.1 Settings card delivery

Conditions

- Password level 2

In this data screen settings are made for delivery of the card.



41.1 Settings card delivery

Levelling sliver weight ON
Automatic acceleration OFF

Delivery draft
min 1.25 eff 1.77 max 1.80

Adaptation sliver weight 2.4 ** %
Card at creep speed 80 %

Reset to setup draft No

115 Delivery normal

Figure 80: Data screen 41.1

1	Compensation factor of loss of material	2	Suggested compensation factor of sliver weight at creep speed
3	Set compensation factor		

Levelling sliver weight : See *Doing the Configuration of the Delivery Unit ▸ 211*

Automatic acceleration : Selecting the automatic acceleration. See *Starting the Production ▸ 334*

Delivery draft : See *Setting the Draft for the Delivery Rollers and the Take-Off Roller ▸ 279* and *Doing the Configuration of the Delivery Unit ▸ 211*

Conditions

- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected. This condition is only applied for the first value 1 (compensation factor of loss of material).

Adaptation sliver weight :

See *Adjusting the Sliver Weight in the Slow Speed ▸ 278*

Conditions

- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

Card at creep speed : This is the set compensation factor.

See *Adjusting the Sliver Weight in the Slow Speed ▸ 278*

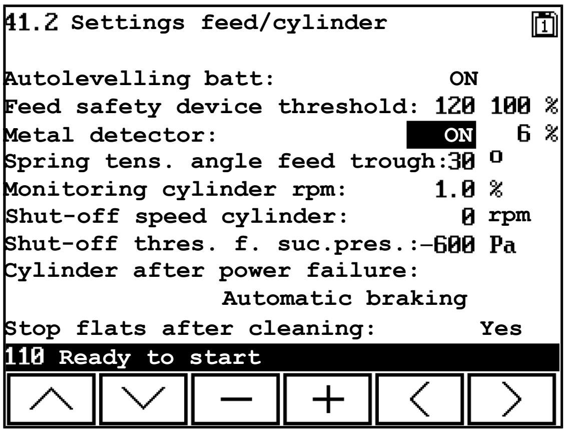
Reset to setup draft : Reset the delay of the autoleveler. See *Doing the Configuration of the Delivery Unit ▸ 211*

4.5.9.2 Data Screen 41.2 Settings feed/cylinder

Conditions

- Password level 2

In this data screen settings can be made in the feed and cylinder areas.



```
41.2 Settings feed/cylinder

Autolevelling batt:                ON
Feed safety device threshold: 120 100 %
Metal detector:                    ON   6 %
Spring tens. angle feed trough:30 °
Monitoring cylinder rpm:       1.0 %
Shut-off speed cylinder:         0 rpm
Shut-off thres. f. suc.pres.:-600 Pa
Cylinder after power failure:
              Automatic braking
Stop flats after cleaning:        Yes
110 Ready to start
```

Figure 81: Data screen 41.2 Settings feed/cylinder

Autolevelling batt : See *Doing the Configuration of the Feed Unit and the Cylinder ▸ 212*

Feed safety device threshold : See *Doing the Configuration of the Feed Unit and the Cylinder ▸ 212*

Metal detector: See *Starting the Function of the Metal Detector ▸ 336*

Spring tens. angle feed trough : See *Entering the Angle of the Feed Trough ▸ 237*

Monitoring cylinder rpm : See *Doing the Configuration of the Feed Unit and the Cylinder ▸ 212*

Shut-off speed cylinder : This is where the switch-OFF point is shown in rpm.

Shut-off thres. f. suc.pres. : Setting the switch point. See *Adjusting the Vacuum Monitoring ▸ 177*

Cylinder after power failure : See *Doing the Configuration of the Feed Unit and the Cylinder ▸ 212*

Stop flats after cleaning :

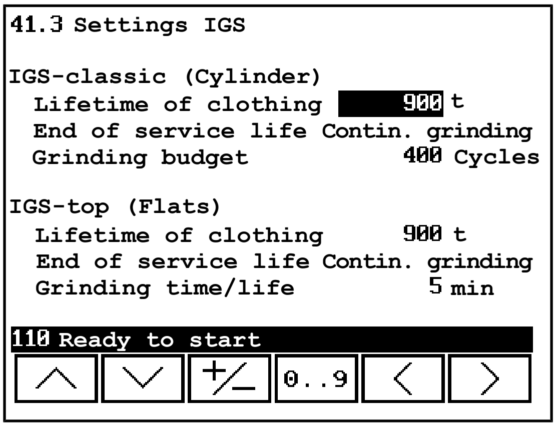
When using an additional external cleaning device, NO must be set so that the card flats are not stopped. Because otherwise the card flat that came to a standstill under the external cleaning device, would be damaged.

4.5.9.3 Data Screen 41.3 Settings IGS

Conditions

– Password level 2

In this data screen, experiential values are set concerning maintenance of the cylinder clothing.



```
41.3 Settings IGS

IGS-classic (Cylinder)
  Lifetime of clothing         900 t
  End of service life Contin. grinding
  Grinding budget              400 Cycles

IGS-top (Flats)
  Lifetime of clothing         900 t
  End of service life Contin. grinding
  Grinding time/life             5 min

110 Ready to start
```

Figure 82: Data Screen 41.3 Settings IGS

IGS-classic (Cylinder) :

Lifetime of clothing : See *Doing the Configuration of the IGS ▸ 213*.

End of service life : See *Examining the Grinding Stone ▸ 515* and *Doing the Configuration of the IGS ▸ 213*.

Grinding budget : See *Doing the Configuration of the IGS ▸ 213*.

IGS-top (Flats) :

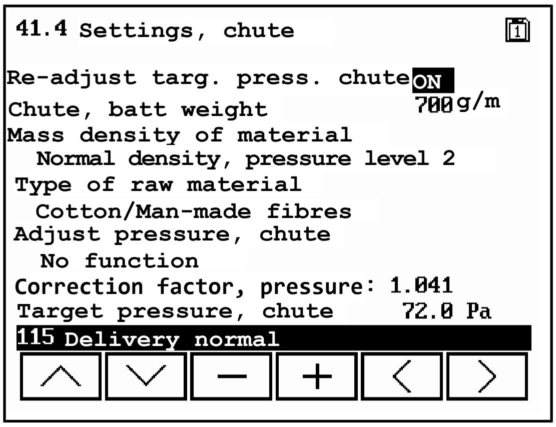
Lifetime of clothing : See *Doing the Configuration of the IGS ▸ 213*.

End of service life : See *Doing the Configuration of the IGS ▸ 213*.

Grinding time/life : See *Doing the Configuration of the IGS ▸ 213*.

4.5.9.4 Data Screen 41.4 Settings, chute

In this data screen, the monitoring or control unit of the chute filling is configured. So that a uniform batt weight can be achieved, the condition and density of the material used must be configured.



```
41.4 Settings, chute
Re-adjust targ. press. chute ON
Chute, batt weight           700 g/m
Mass density of material
  Normal density, pressure level 2
Type of raw material
  Cotton/Man-made fibres
Adjust pressure, chute
  No function
Correction factor, pressure: 1.041
Target pressure, chute      72.0 Pa
115 Delivery normal
```

Figure 83: Data screen 41.4 Settings, chute

Re-adjust targ. press. chute : Switch on this function in production mode. This function can be switched off for tests.

Chute, batt weight : See *Adjusting the Batt Weight* ▸ *225*.

Mass density of material : See *Adjusting the Batt Weight* ▸ *225*.

Type of raw material : See *Adjusting the Batt Weight* ▸ *225*.

Adjust pressure, chute : See *Examining the Batt Weight* ▸ *226*.

Correction factor, pressure : This internally determined value is shown so that it can be re-entered after a software update.

Target pressure, chute : The value determined internally will be shown.

4.5.10 Menu 42 Settings, Coiler

Group of data screens for entry of the setup values of the coiler.

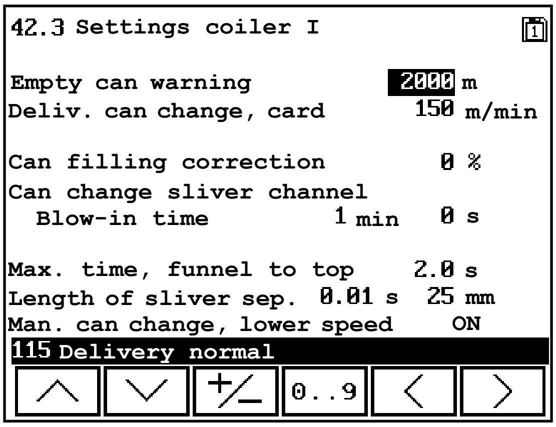
The number in the frame top right on the data screens displays the current production values group. The current production values group can be selected in menu 60.

4.5.10.1 Data Screen 42.3 Settings coiler I

Conditions

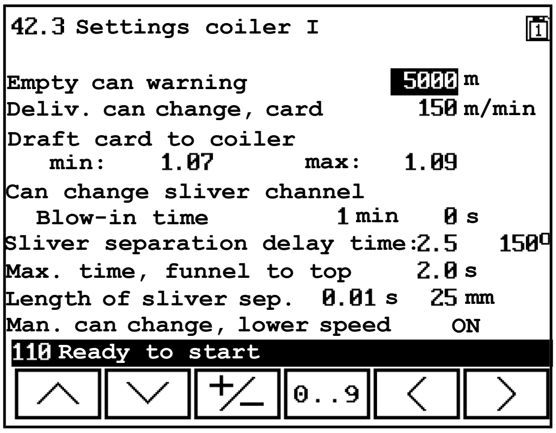
- Password level 2

This data screen can be used to make settings in the delivery section.



```
42.3 Settings coiler I

Empty can warning              2000 m
Deliv. can change, card         150 m/min

Can filling correction            0 %
Can change sliver channel
  Blow-in time            1 min   0 s

Max. time, funnel to top        2.0 s
Length of sliver sep.  0.01 s    25 mm
Man. can change, lower speed     ON
115 Delivery normal
```

Figure 84: Data screen 42.3 Settings coiler I **(Option: CBA-5)**



```
42.3 Settings coiler I

Empty can warning              5000 m
Deliv. can change, card         150 m/min
Draft card to coiler
   min:    1.07       max:    1.09
Can change sliver channel
  Blow-in time            1 min   0 s
Sliver separation delay time:2.5   150°
Max. time, funnel to top        2.0 s
Length of sliver sep.  0.01 s    25 mm
Man. can change, lower speed     ON
110 Ready to start
```

Figure 85: Data screen 42.3 Settings coiler I **(Option: CBA 1200)**

Empty can warning : Set empty can. See *Doing the Configuration of the Sliver Coiling Device* ▸ *215*

Deliv. can change, card : See *Doing the Configuration of the Sliver Coiling Device* ▸ *215*

Can filling correction : See *Correcting the Can Fill Quantity* ▸ *321*

Draft card to coiler:

- **min:** The draft between card and coiler at creep speed.
- **max:** The draft between card and coiler at full speed.

Blow-in time : See *Adjusting the Air Injector of the Sliver Coiling Device* ▸ *307*

Max. time, funnel to top : Set the delay time of sliver cutting. See *Adjusting the Sliver Funnel* ▸ *305*

Length of sliver sep. : Set the clamping duration. See *Adjusting the Sliver Funnel* ▸ *305*

Man. can change, lower speed : Set the speed for manual can change. See *Doing the Configuration of the Sliver Coiling Device ▸ 215*

4.5.11 Menu 43 Settings, Configuration

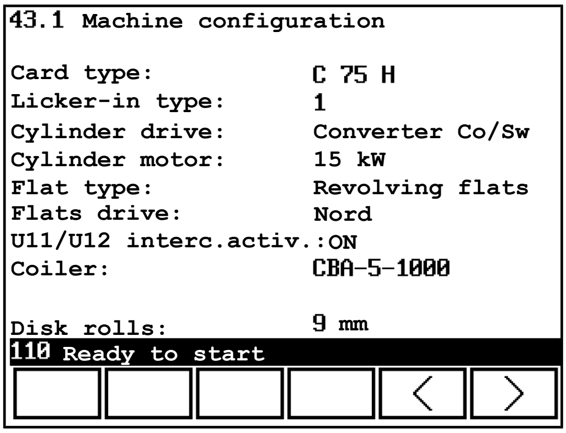
Group of data screens for entry of the setup values.

4.5.11.1 Data Screen 43.1 Machine configuration

Conditions

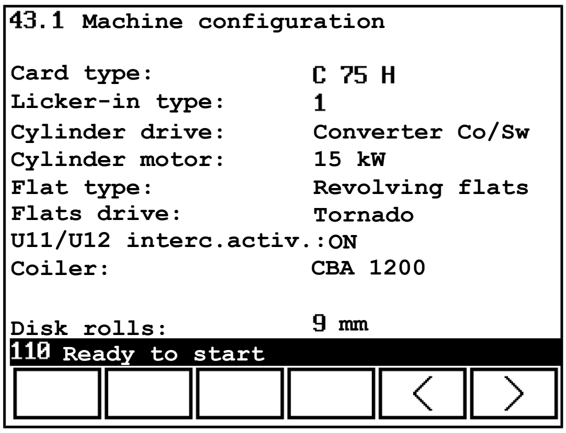
- Password level 2
- In data screen 80.1, the operating mode **Change configuration** is selected.

The machine must always be configured in this data screen.



```
43.1 Machine configuration

Card type:             C 75 H
Licker-in type:        1
Cylinder drive:        Converter Co/Sw
Cylinder motor:        15 kW
Flat type:             Revolving flats
Flats drive:           Nord
U11/U12 interc.activ.:ON
Coiler:                CBA-5-1000

Disk rolls:            9 mm
110 Ready to start
```

Figure 86: Data screen 43.1 Machine configuration **(Option: CBA-5)**



```
43.1 Machine configuration

Card type:             C 75 H
Licker-in type:        1
Cylinder drive:        Converter Co/Sw
Cylinder motor:        15 kW
Flat type:             Revolving flats
Flats drive:           Tornado
U11/U12 interc.activ.:ON
Coiler:                CBA 1200

Disk rolls:            9 mm
110 Ready to start
```

Figure 87: Data screen 43.1 Machine configuration **(Option: CBA 1200)**

Card type :

Configure machine type. See *Doing the Configuration of the Machine Equipment ▸ 156*

Licker-in :

Configure the number of licker-ins. See *Doing the Configuration of the Machine Equipment ▸ 156*

Cylinder drive :

Configure the type of cylinder drive. See *Doing the Configuration of the Machine Equipment ▸ 156*

Cylinder motor :

This is where the motor power is displayed. This depends on the card type.

Flat type :

Configure the type of card flat. See *Doing the Configuration of the Machine Equipment ▸ 156*

Flats drive :

Configure the version of flat drive. See *Doing the Configuration of the Machine Equipment ▸ 156*

U11/U12 interc.activ. :

Configure the converter composite. See *Doing the Configuration of the Machine Equipment ▸ 156*

Coiler :

See *Doing the Configuration of the Machine Equipment ▸ 156*

Disk rolls :

See *Adjusting the Sliver Weight ▸ 208*

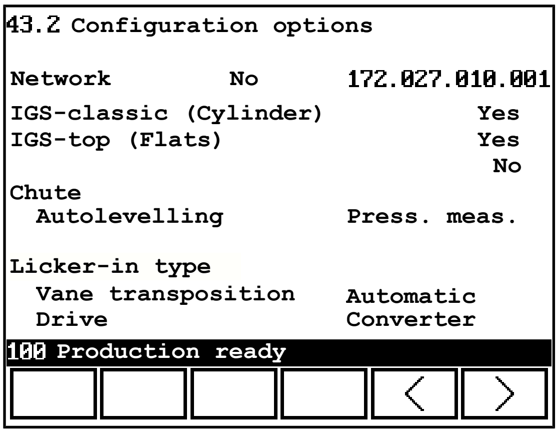
See *Doing the Configuration of the Machine Equipment ▸ 156*

4.5.11.2 Data Screen 43.2 Configuration options

Conditions

- Password level 2
- In data screen 80.1, the operating mode **Change configuration** is selected.

The machine must always be configured in this data screen.



```
43.2 Configuration options

Network          No       172.027.010.001
IGS-classic (Cylinder)              Yes
IGS-top (Flats)                     Yes
                                     No
Chute
  Autolevelling          Press. meas.

Licker-in type
  Vane transposition     Automatic
  Drive                  Converter
100 Production ready
```

Figure 88: Data Screen 43.2 Configuration options

Network :

Configure network. See *Doing the Configuration of the Options* ▸ *157*

IGS-classic (Cylinder) :

Configure IGS-Classic. See *Doing the Configuration of the Options* ▸ *157*

IGS-top (Flats) :

Configure IGS-Top. See *Doing the Configuration of the Options* ▸ *157*

Vane transposition :

Configure knife adjustment. See *Doing the Configuration of the Options* ▸ *157*

Drive :

Configure drive licker-in. See *Doing the Configuration of the Options* ▸ *157*

4.5.12 Menu 50 Configuration, Shifts

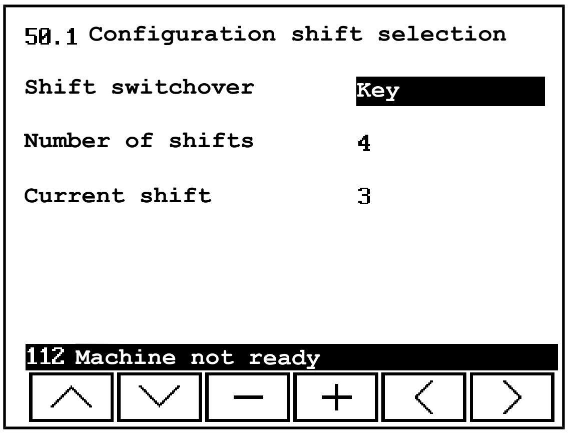
Group of data screens for entry of the shift data.

4.5.12.1 Data Screen 50.1 Configuration shift selection

Conditions

- Password level 2

In this data screen the key shift planning data can be determined.



50.1 Configuration shift selection

Shift switchover Key

Number of shifts 4

Current shift 3

112 Machine not ready

Figure 89: Data screen 50.1 Configuration shift selection

Shift switchover

Set the number of shifts. See *Selecting the Shift Planning Properties* ▸ *347*

Set the type of shift changeover. See *Selecting the Shift Planning Properties* ▸ *347*

Program the shift schedule. See *Setting the Shift Schedule* ▸ *349*

Changeover shift manually. See *Changing Over a Shift Manually* ▸ *348*

Number of shifts

Set the number of shifts. See *Selecting the Shift Planning Properties* ▸ *347*

Current shift

Changeover shift manually. See *Changing Over a Shift Manually* ▸ *348*

Partial shift report

Determine the procedure for how the shift will be concluded. See *Selecting the Shift Planning Properties* ▸ *347*

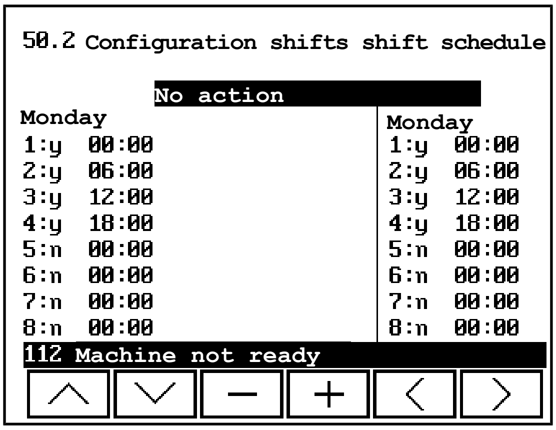
4.5.12.2 Data Screen 50.2 Configuration shifts shift schedule

Conditions

- Password level 2

In this data screen the shift schedule for a week is entered.

We suggest creating (programming) a daily schedule and then copying it into the other days of the week. Any deviations can be input individually. Changes in the values are only possible on the left side.



50.2 Configuration shifts shift schedule

No action

Monday	Monday
1:y 00:00	1:y 00:00
2:y 06:00	2:y 06:00
3:y 12:00	3:y 12:00
4:y 18:00	4:y 18:00
5:n 00:00	5:n 00:00
6:n 00:00	6:n 00:00
7:n 00:00	7:n 00:00
8:n 00:00	8:n 00:00

112 Machine not ready

Figure 90: Data screen 50.2 Configuration shifts shift schedule

First line

Duplicate a day shift schedule. See *Setting the Shift Schedule* ▸ *349*

Second line left

Program the shift day schedule. See *Setting the Shift Schedule* ▸ *349*

Lines 1-8 left

Program the shift day schedule. See *Setting the Shift Schedule* ▸ *349*

4.5.13 Menu 60 Production Value Groups

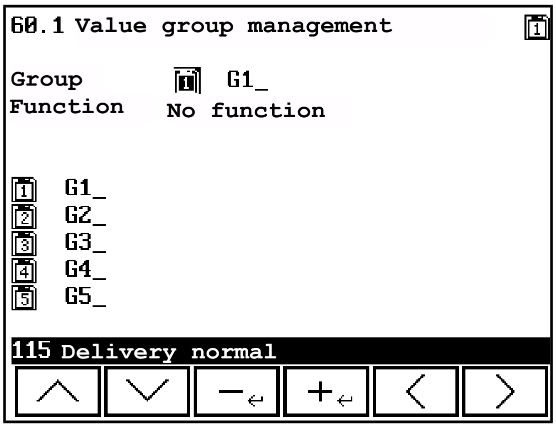
Group of data screens for entry of production value groups.

4.5.13.1 Data Screen 60.1 Value group management

Conditions

- Password level 2

In this data screen production values can be stored in groups for specific applications. For example, an application can be a specific assortment.



60.1 Value group management

Group G1_
Function No function

1 G1_
2 G2_
3 G3_
4 G4_
5 G5_

115 Delivery normal

Figure 91: Data screen 60.1 Value group management

Framed number upper right:

Displays the current production values group. The current production values can be changed in the menus 10, 22, 41, and 42.

Group:

Select the production value group. See *Setting the Production Value Groups ▸ 345*

Function:

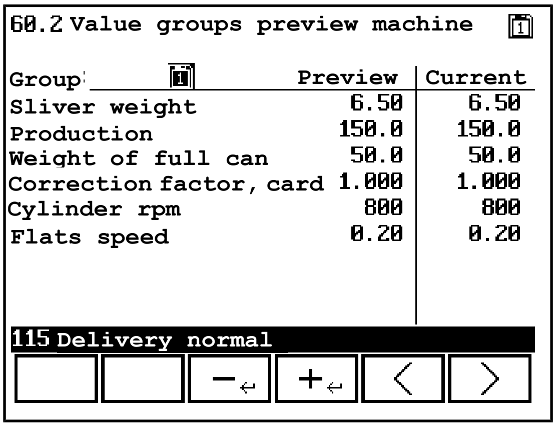
Select the production value group. See *Setting the Production Value Groups ▸ 345*

Load existing production values into a new group. See *Setting the Production Value Groups ▸ 345*

Name the value group. See *Setting the Production Value Groups ▸ 345*

4.5.13.2 Data Screen 60.2 Value groups preview machine

In this data screen the values of two groups can be compared.



60.2 Value groups preview machine

Group:	Preview	Current
Sliver weight	6.50	6.50
Production	150.0	150.0
Weight of full can	50.0	50.0
Correction factor, card	1.000	1.000
Cylinder rpm	800	800
Flats speed	0.20	0.20

115 Delivery normal

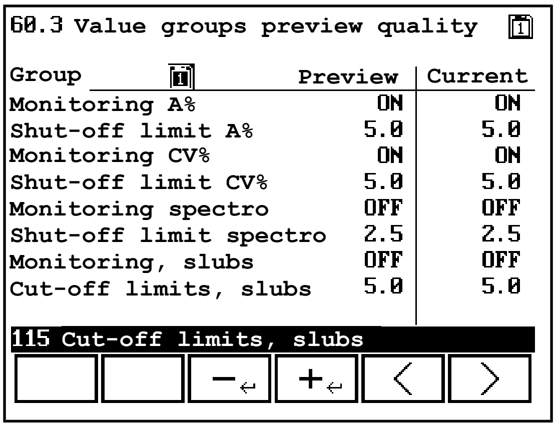
Figure 92: Data Screen 60.2 Value groups preview machine

Group :

Compare values of two groups in the preview. See *Setting the Production Value Groups ▸ 345*

4.5.13.3 Data Screen 60.3 Value groups preview quality

In this data screen the values of two groups can be compared.



60.3 Value groups preview quality

Group	Preview	Current
Monitoring A%	ON	ON
Shut-off limit A%	5.0	5.0
Monitoring CV%	ON	ON
Shut-off limit CV%	5.0	5.0
Monitoring spectro	OFF	OFF
Shut-off limit spectro	2.5	2.5
Monitoring, slubs	OFF	OFF
Cut-off limits, slubs	5.0	5.0

115 Cut-off limits, slubs

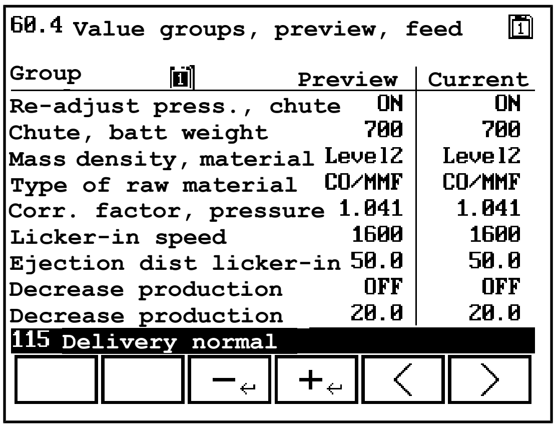
Figure 93: Data Screen 60.3 Value groups preview quality

Group:

Compare values of two groups in the preview. See *Setting the Production Value Groups ▸ 345*

4.5.13.4 Data Screen 60.4 Value groups, preview, feed

In this data screen the values of two groups can be compared.



60.4 Value groups, preview, feed

Group	Preview	Current
Re-adjust press., chute	ON	ON
Chute, batt weight	700	700
Mass density, material	Level2	Level2
Type of raw material	CO/MMF	CO/MMF
Corr. factor, pressure	1.041	1.041
Licker-in speed	1600	1600
Ejection dist licker-in	50.0	50.0
Decrease production	OFF	OFF
Decrease production	20.0	20.0

115 Delivery normal

Figure 94: Data Screen 60.4 Value groups, preview, feed

Group:

Compare values of two groups in the preview. See *Setting the Production Value Groups ▸ 345*

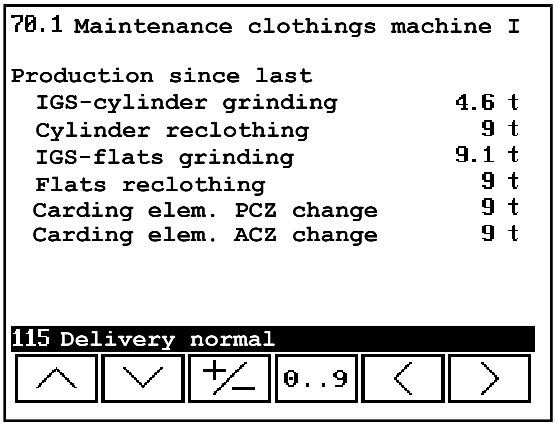
4.5.14 Menu 70 Maintenance Clothings

Group of data screens for configuration of clothing maintenance.

4.5.14.1 Data Screen 70.1 Maintenance clothings machine I

Conditions
– Password level 2

In this data screen, multiple production quantity counters are displayed. This data screen shows which maintenance task has been executed. After executing such a maintenance task, here the appropriate counter must be set to zero manually.



```
70.1 Maintenance clothings machine I

Production since last
  IGS-cylinder grinding        4.6 t
  Cylinder reclothing            9 t
  IGS-flats grinding           9.1 t
  Flats reclothing               9 t
  Carding elem. PCZ change       9 t
  Carding elem. ACZ change       9 t

115 Delivery normal
```

Figure 95: Data Screen 70.1 Maintenance clothings machine I

IGS-cylinder grinding:

For the IGS grinding process, the counter will be reset automatically. For the machine without IGS-classic, the counter has to be reset manually.

Cylinder reclothing:

Resetting the counter after re-clothing. See *Setting the Counter after the Re-clothing ▸ 497*

Flats grinding:

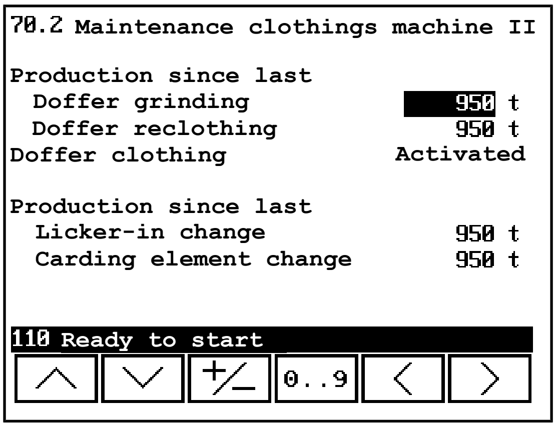
Resetting the counter after grinding. See *Doing the Grinding of the Card Flats ▸ 507*

4.5.14.2 Data Screen 70.2 Maintenance clothings machine II

Conditions

– Password level 2

In this data screen, multiple production quantity counters are displayed. Each counter is assigned for a specific task. If such a task has been executed, then here the appropriate counter must be set to zero manually. This data screen shows when which maintenance task has been executed.



```
70.2 Maintenance clothings machine II

Production since last
  Doffer grinding                 950 t
  Doffer reclothing               950 t
Doffer clothing             Activated

Production since last
  Licker-in change                950 t
  Carding element change          950 t


110 Ready to start
```

Figure 96: Data Screen 70.2 Maintenance clothings machine II

Doffer grinding:

Resetting the counter after grinding. See *Setting the Counter after the Grinding* ▸ *498*

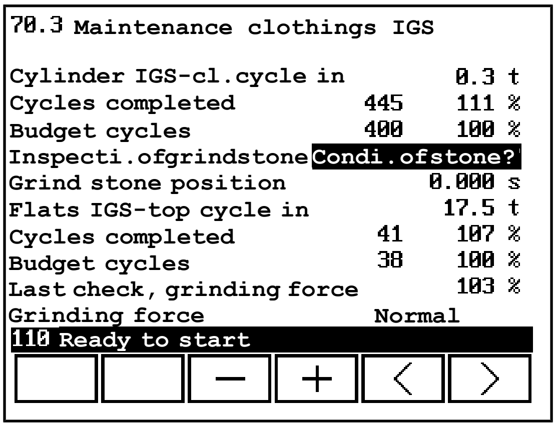
Doffer clothing:

Changing doffer clothing. See *Doing the Activation of the Doffer Clothing* ▸ *498*

Resetting the counter after activating. See *Setting the Counter after the Grinding* ▸ *498*

4.5.14.3 Data Screen 70.3 Maintenance Clothings IGS

In this data screen the actions of IGS are logged. This is where the current actual values are displayed.



```
70.3 Maintenance clothings IGS

Cylinder IGS-cl.cycle in          0.3 t
Cycles completed          445     111 %
Budget cycles             400     100 %
Inspecti.ofgrindstone Condi.ofstone?
Grind stone position            0.000 s
Flats IGS-top cycle in           17.5 t
Cycles completed           41     107 %
Budget cycles              38     100 %
Last check, grinding force        103 %
Grinding force              Normal
110 Ready to start
```

Figure 97: Data Screen 70.3 Maintenance clothings IGS

Inspecti.of grindstone:

After cylinder re-clothing, the grinding stone of the IGS-Classic should also be replaced.

Install the grinding stone. See *Replacing the Grinding Stone* ▸ *518*

Confirm to continue the grinding. See *Replacing the Grinding Stone ▸ 518*

Grinding force:

Decrease grinding pressure of IGS-Top. See *Adjusting the Grinding Pressure ▸ 533*

Increase the grinding pressure of IGS-Top. See *Adjusting the Grinding Pressure ▸ 533*

Check current consumption of IGS-Top (with grinding brush contact on the card flats clothing). See *Examining the Grinding Pressure ▸ 532*

4.5.15 Menu 80 Operating Mode/Tests

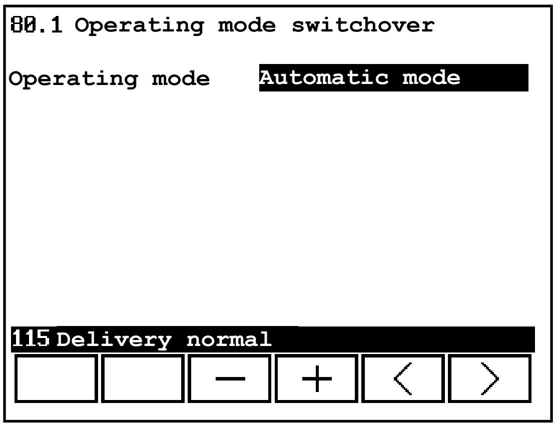
Group of data screens for selection of operating mode, as well as tests.

4.5.15.1 Data Screen 80.1 Operating mode switchover

Conditions

- Password level 2

In this data screen the operating mode must be selected.



```
80.1 Operating mode switchover

Operating mode      Automatic mode
```

```
115 Delivery normal
```

Figure 98: Data screen 80.1 Operating mode switchover

Operating mode:

The correct operating mode must be selected depending on the situation.

Operating Mode	
Operating mode: **Automatic mode**	Mode for production operation
Operating mode: **Test mode**	Test functions in the menus 82 - 85 can be executed
Operating mode: **Change configuration**	Data screen 43.1 and 43.2 can be changed
Operating mode: **Service mode**	Operating mode for grinding and pulling on the clothing in menu 81

4.5.16 Menu 81 Grind/Put on

In this menu, parameters are set for grinding the clothing elements of the cylinder, the doffers and the card flats.

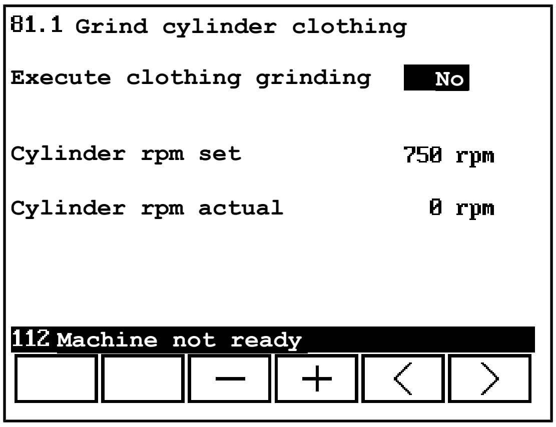
Group of data screens for execution of clothing maintenance.

4.5.16.1 Data Screen 81.1 Grind cylinder clothing

Conditions

- Password level 2
- In data screen 80.1, **Service mode** is selected.

This data screen is for grinding the cylinder clothing.



81.1 Grind cylinder clothing

Execute clothing grinding No

Cylinder rpm set 750 rpm

Cylinder rpm actual 0 rpm

112 Machine not ready

Figure 99: Data Screen 81.1 Grind cylinder clothing

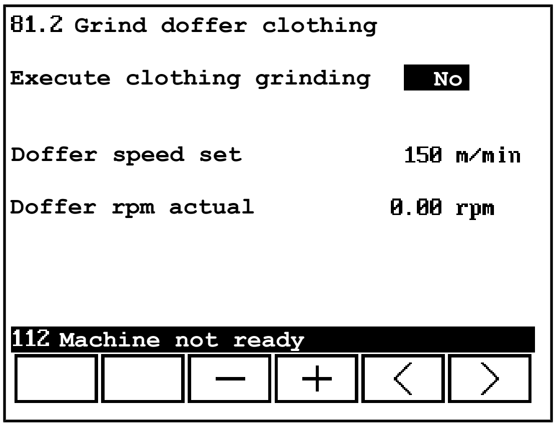
Cylinder rpm actual: The current cylinder rpm is shown.

4.5.16.2 Data Screen 81.2 Grind doffer clothing

Conditions

- Password level 2
- In data screen 80.1, **Service mode** is selected.

This data screen is for grinding the cylinder clothing.



81.2 Grind doffer clothing

Execute clothing grinding No

Doffer speed set 150 m/min

Doffer rpm actual 0.00 rpm

112 Machine not ready

Figure 100: Data Screen 81.2 Grind doffer clothing

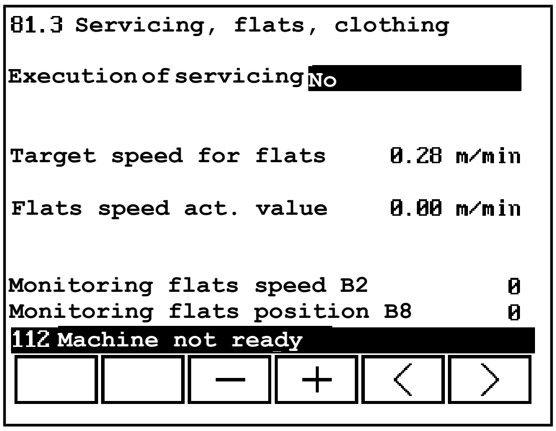
Doffer rpm actual: The current doffer rpm is displayed.

4.5.16.3 Data Screen 81.3 Servicing, flats, clothing

Conditions

- Password level 2
- In data screen 80.1, **Service mode** is selected.

This data screen is for grinding the clothing of the card flats.



```
81.3 Servicing, flats, clothing

Execution of servicing No


Target speed for flats        0.28 m/min

Flats speed act. value        0.00 m/min


Monitoring flats speed B2             0
Monitoring flats position B8          0
112 Machine not ready
```

Figure 101: Data Screen 81.3 Servicing, flats, clothing

Carry out servicing: The following actions can be selected here:

- **Flat grinding**
- **Flat measurement**
- **Flat reversal**
- **No**

Carry out servicing:

Activate the card flats drive for grinding. See *Starting the Card Flats for the Grinding* ▸ *503*

Activating measurement mode for the positioning of the card flats. See *Moving the Card Flats to Do the Adjustment* ▸ *265*

Driving card flats in reverse. See *Moving the Card Flats Backward* ▸ *272*

Target speed for flats: Setting the lowest speed for grinding. See *Starting the Card Flats for the Grinding* ▸ *503*

Flats speed act. value: Display of the entered card flats speed.

Monitoring flats speed B2: Switch status of the proximity switches for monitoring the card flats.

Monitoring flats position B8: Switch status of the proximity switches for monitoring the card flats.

If the differences of the signals of the two proximity switches vary excessively, the drive of the card flats switches off.

4.5.17 Menu 82 Test Inputs/Outputs and Covers

The inputs are divided into groups. First select the appropriate group, and then select the input to be tested. The status of the selected input is switched to the beacon. This enables one person to test an input (e.g. by covering the proximity switch).

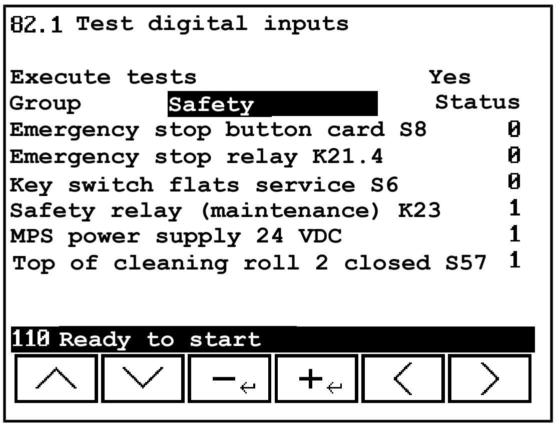
Group of data screens for testing of inputs / outputs.

4.5.17.1 Data Screen 82.1 Test digital inputs

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In data screen 82.1 the status of selected controller inputs can be displayed. An example is presented below that shows how the controller inputs are organized in groups. The listing is not complete.



```
82.1 Test digital inputs

Execute tests                   Yes
Group       Safety               Status
Emergency stop button card S8      0
Emergency stop relay K21.4         0
Key switch flats service S6        0
Safety relay (maintenance) K23     1
MPS power supply 24 VDC            1
Top of cleaning roll 2 closed S57  1


110 Ready to start
```

Figure 102: Data Screen 82.1 Test digital inputs

Execute tests:

This is where the test can be activated. These digital inputs can be tested.

- **Yes**
- **No**

Group : General

- **MPS chute drives Q42,Q43**
- **MPS chute drives Q41**
- **MPS c.feed roll/clean.brush Q10,Q14**
- …

Group : Safety

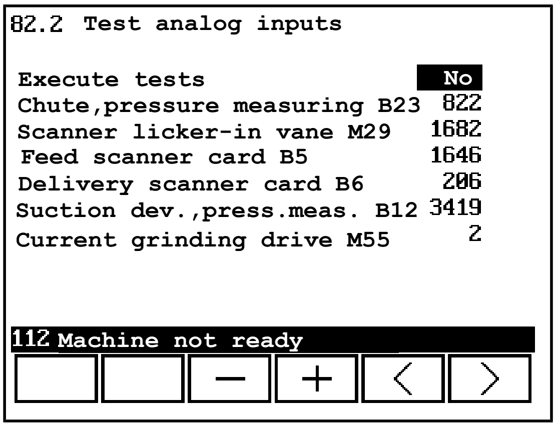
- **Emergency stop button card S8**
- **Emergency stop relay K21.4**
- **Key switch flats service S6**
- …

4.5.17.2 Data Screen 82.2 Test analog inputs

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In data screen 82.2 the states of the analog inputs are displayed.



```
82.2  Test analog inputs

 Execute tests                          No
 Chute,pressure measuring B23          822
 Scanner licker-in vane M29           1682
 Feed scanner card B5                 1646
 Delivery scanner card B6              206
 Suction dev.,press.meas. B12         3419
 Current grinding drive M55              2

112 Machine not ready
```

Figure 103: Data screen 82.2 Test analog inputs

Chute,pressure measuring B23: Adjust the pressure monitoring signal. See Calibrating the Pressure Monitoring Sensor

Feed scanner card B5: Adjust the sensor in the feed. See Adjusting the Sensor in the Feed Unit

Delivery scanner card B6: Calibrating the measuring device in the delivery. See *Calibrating the Distance Measuring Device* ▸ *297*

Suction dev.,press.meas. B12: Set the switch point. See *Adjusting the Vacuum Monitoring* ▸ *177*

Current grinding drive M55:

Reducing grinding pressure. See *Adjusting the Grinding Pressure* ▸ *533*

Increasing the grinding pressure See *Adjusting the Grinding Pressure* ▸ *533*

Examine current consumption (with grinding brush contact on the card flats clothing). See *Examining the Grinding Pressure* ▸ *532*

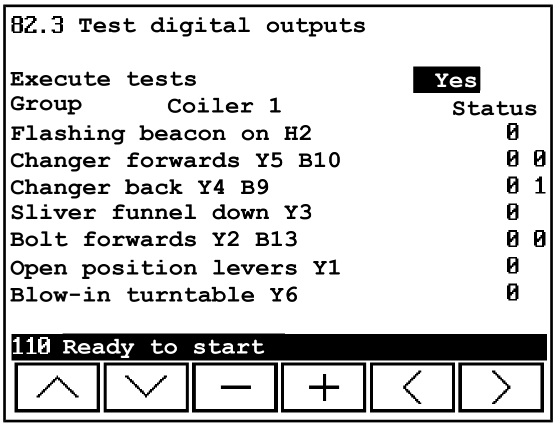
4.5.17.3 Data Screen 82.3 Test digital outputs

Conditions

- Password level 2

- In data screen 80.1, **Test mode** is selected.

In this data screen the individual analog outputs can be tested. Switch off all safety switches for the control system, except Q15. The test cannot be carried out otherwise. An example is presented below that shows how the outputs are organized in groups. The list is not complete.



```
82.3 Test digital outputs

Execute tests                    Yes
Group      Coiler 1             Status
Flashing beacon on H2              0
Changer forwards Y5 B10            0 0
Changer back Y4 B9                 0 1
Sliver funnel down Y3              0
Bolt forwards Y2 B13               0 0
Open position levers Y1            0
Blow-in turntable Y6               0

110 Ready to start
```

Figure 104: Data Screen 82.3 Test digital outputs

Execute tests : This is where the test can be activated. The digital outputs can be tested.

- **Yes**
- **No**

Group : Coiler 1

- **Flashing beacon on H2**
- **Changer forwards Y5 B10**
- **Changer forwards Y10 B10**
- …

Group : Chute

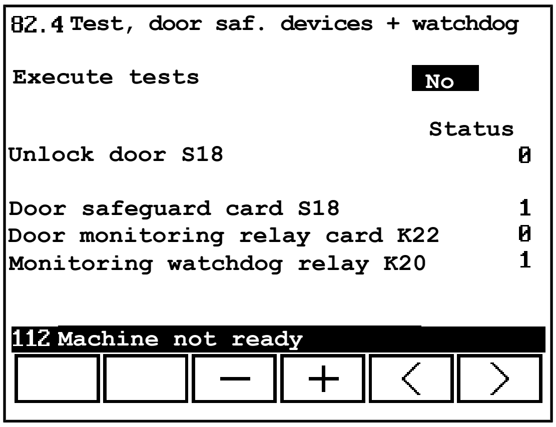
- **FC feed roll chute enable K41**
- **Chute opening roll K42.1**
- **Chute opening roll K42.3**
- …

4.5.17.4 Data Screen 82.4 Test, door saf. devices + watchdog

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen the states of the door safeguards are displayed.



```
82.4 Test, door saf. devices + watchdog

Execute tests                       No

                                     Status
Unlock door S18                           0

Door safeguard card S18                   1
Door monitoring relay card K22            0
Monitoring watchdog relay K20             1

112 Machine not ready
```

Figure 105: Data screen 82.4 Test, door saf. devices + watchdog

Execute tests:

Testing safety relay "Watchdog". See *Doing the Function Test of the Safety Relay ▸ 172*

Unlock door S18:

Checking the safety switch electrically. See *Adjusting the Door Locking Mechanism and the Safety Switch ▸ 163*

4.5.18 Menu 83 Test Drives

If the start key on the operating unit is activated, the selected drive starts. The test function can be stopped with the stop key. The target and actual speed and other data are displayed.

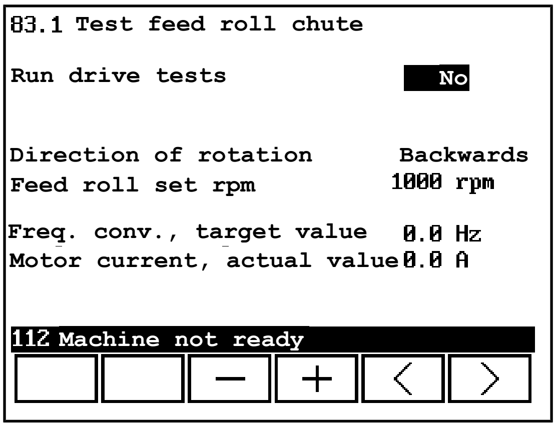
Group of data screens for testing the drives.

4.5.18.1 Data Screen 83.1 Test feed roll chute

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen drives can be tested. The information concerning the drive are used for diagnosis.



```
83.1 Test feed roll chute

Run drive tests                    No


Direction of rotation        Backwards
Feed roll set rpm            1000 rpm

Freq. conv., target value     0.0 Hz
Motor current, actual value0.0 A


112 Machine not ready
```

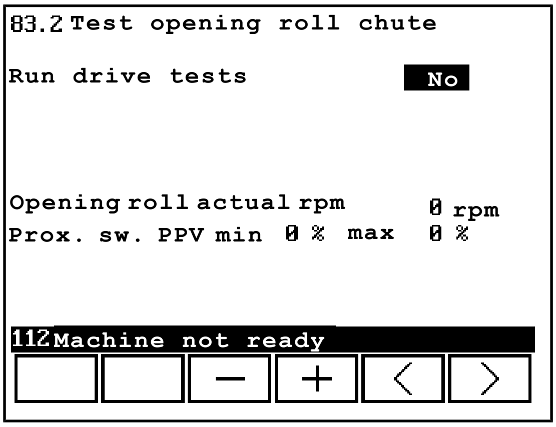
Figure 106: Data Screen 83.1 Test feed roll chute

4.5.18.2 Data Screen 83.2 Test opening roll chute

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In data screen 83.2 drives can be tested.



```
83.2 Test opening roll chute

Run drive tests                    No



Opening roll actual rpm         0 rpm
Prox. sw. PPV min  0 %  max     0 %


112 Machine not ready
```

Figure 107: Data screen 83.2 Test opening roll chute

Opening roll actual rpm: The effective rpm is displayed.

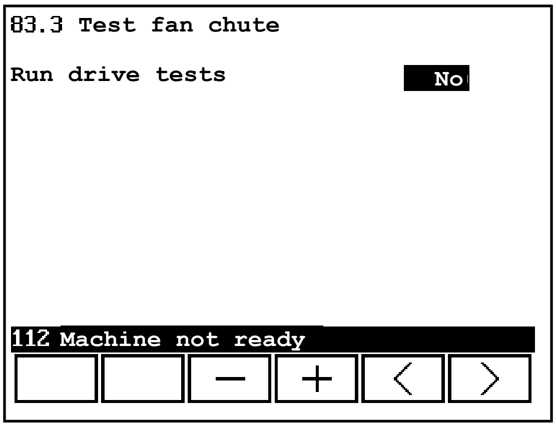
Prox. sw. PPV min: Checking the adjustment of the proximity switch. See *Adjusting the Proximity Switch of the Opening Roller ▸ 178*

4.5.18.3 Data Screen 83.3 Test fan chute

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In data screen 83.3 drives are tested.



83.3 Test fan chute

Run drive tests No

112 Machine not ready

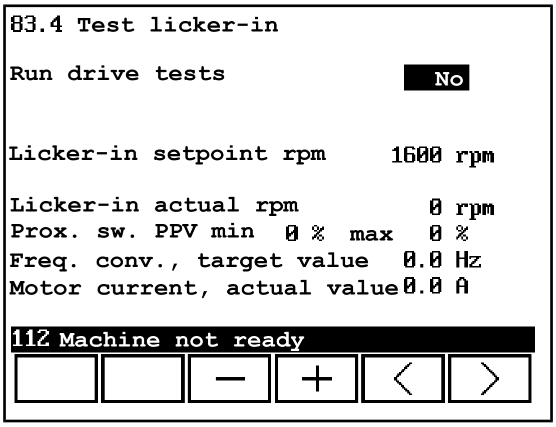
Figure 108: Data Screen 83.3 Test fan chute

4.5.18.4 Data Screen 83.4 Test licker-in

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen drives can be tested.



83.4 Test licker-in

Run drive tests No

Licker-in setpoint rpm 1600 rpm

Licker-in actual rpm 0 rpm
Prox. sw. PPV min 0 % max 0 %
Freq. conv., target value 0.0 Hz
Motor current, actual value 0.0 A

112 Machine not ready

Figure 109: Data Screen 83.4 Test licker-in **(Option: Licker-in drive with frequency converter)**

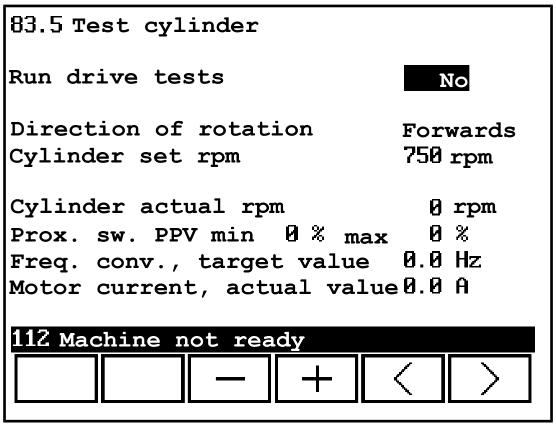
Prox. sw. PPV min: Check setting. See *Adjusting the Proximity Switch for the Licker-in Speed* ▸ *180*.

4.5.18.5 Data Screen 83.5 Test cylinder

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In data screen 83.5 drives can be tested.



```
83.5 Test cylinder

Run drive tests                      No

Direction of rotation              Forwards
Cylinder set rpm                   750 rpm

Cylinder actual rpm                  0 rpm
Prox. sw. PPV min   0 %  max         0 %
Freq. conv., target value          0.0 Hz
Motor current, actual value        0.0 A

112 Machine not ready
```

Figure 110: Data screen 83.5 Test cylinder

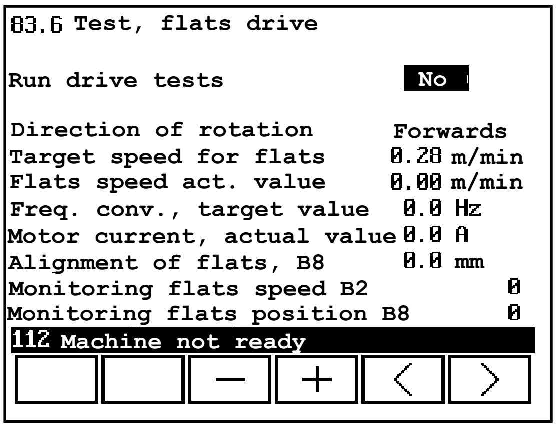
Prox. sw. PPV min: Checking the adjustment of the proximity switch. See *Adjusting the Proximity Switch for the Cylinder* ▸ *181*.

4.5.18.6 Data Screen 83.6 Test, flats drive

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen drives are tested.



```
83.6 Test, flats drive

Run drive tests                      No

Direction of rotation              Forwards
Target speed for flats             0.28 m/min
Flats speed act. value             0.00 m/min
Freq. conv., target value          0.0 Hz
Motor current, actual value        0.0 A
Alignment of flats, B8             0.0 mm
Monitoring flats speed B2                0
Monitoring flats_position B8             0
112 Machine not ready
```

Figure 111: Data screen 83.6 Test, flats drive

Target speed for flats: See *Adjusting the Proximity Switches for the Card Flats* ▸ *182*.

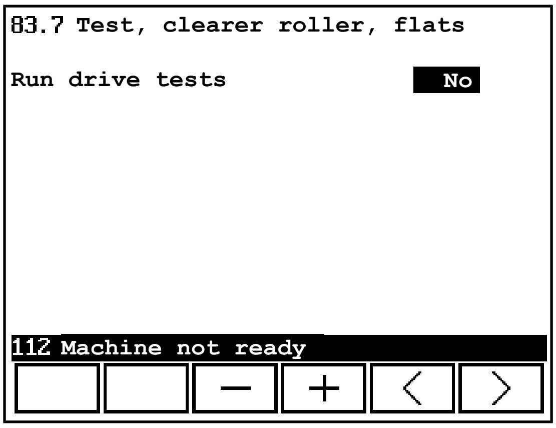
Alignment of flats, B8: Checking parallel run. See *Adjusting the Proximity Switches for the Card Flats* ▸ *182*.

4.5.18.7 Data Screen 83.7 Test, Clearer Roller and Flats

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In data screen 83.7 drives can be tested.



83.7 Test, clearer roller, flats

Run drive tests No

112 Machine not ready

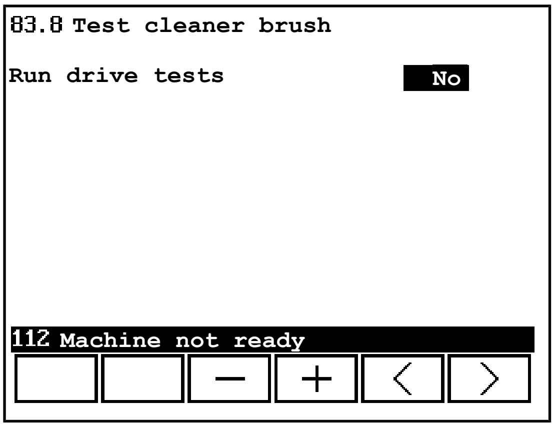
Figure 112: Data Screen 83.7 Test, clearer roller, flats

4.5.18.8 Data Screen 83.8 Test Cleaner Brush

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In the data screen 83.8 drives can be tested.



83.8 Test cleaner brush

Run drive tests No

112 Machine not ready

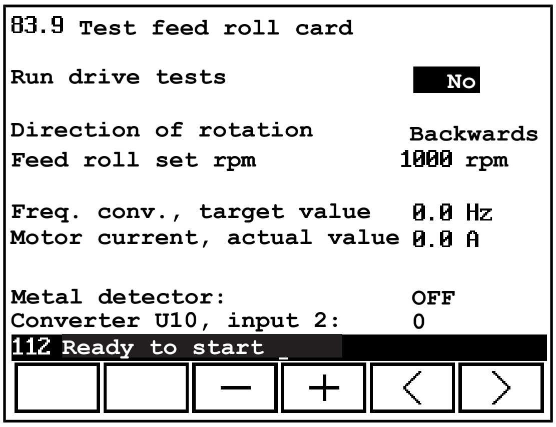
Figure 113: Data Screen 83.8 Test cleaner brush

4.5.18.9 Data Screen 83.9 Test feed roll card

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen drives can be tested.



```
83.9 Test feed roll card

Run drive tests                       No

Direction of rotation              Backwards
Feed roll set rpm                 1000 rpm

Freq. conv., target value        0.0 Hz
Motor current, actual value 0.0 A

Metal detector:                    OFF
Converter U10, input 2:         0
112 Ready to start _
```

Figure 114: Data screen 83.9 Test feed roll card

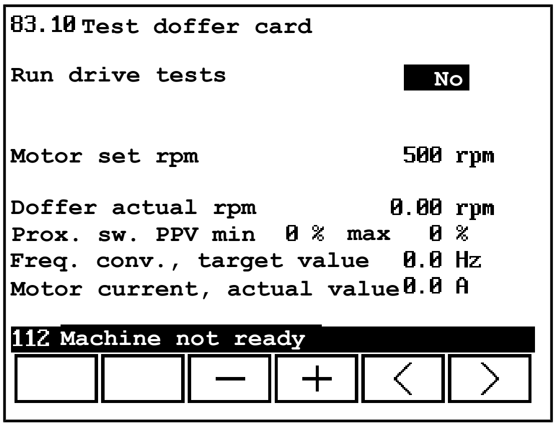
Metal detector: See *Examining the Metal Detector ▸ 484*

4.5.18.10 Data Screen 83.10 Test Doffer Card

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen drives can be tested.



```
83.10 Test doffer card

Run drive tests                      No


Motor set rpm                     500 rpm

Doffer actual rpm              0.00 rpm
Prox. sw. PPV min    0 %  max    0 %
Freq. conv., target value     0.0 Hz
Motor current, actual value0.0 A

112 Machine not ready
```

Figure 115: Data Screen 83.10 Test doffer card

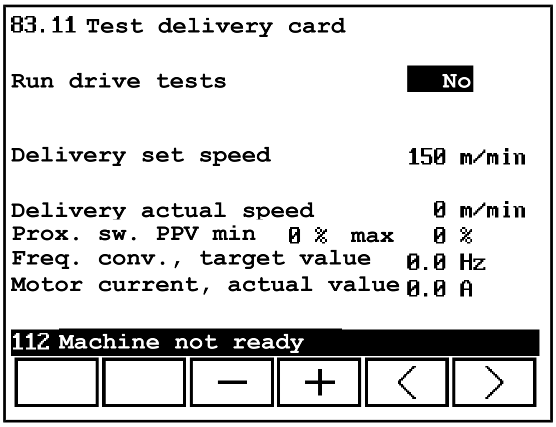
Prox. sw. PPV min: Check setting. See *Adjusting the Proximity Switch for the Doffer Speed ▸ 185*

4.5.18.11 Data Screen 83.11 Test delivery card

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen drives can be tested.


83.11 Test delivery card

Run drive tests No

Delivery set speed 150 m/min

Delivery actual speed 0 m/min
Prox. sw. PPV min 0 % max 0 %
Freq. conv., target value 0.0 Hz
Motor current, actual value 0.0 A

112 Machine not ready

Figure 116: Data Screen 83.11 Test delivery card

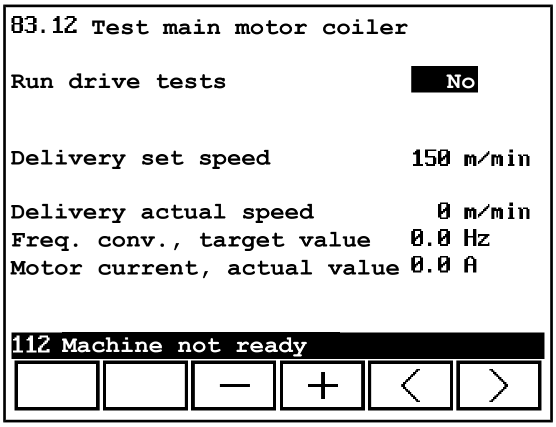
Prox. sw. PPV min: Check setting. See *Setting the Proximity Switch for the Delivery Speed ▸ 185*

4.5.18.12 Data Screen 83.12 Test main motor coiler

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

This data screen can be used to test drive units.


83.12 Test main motor coiler

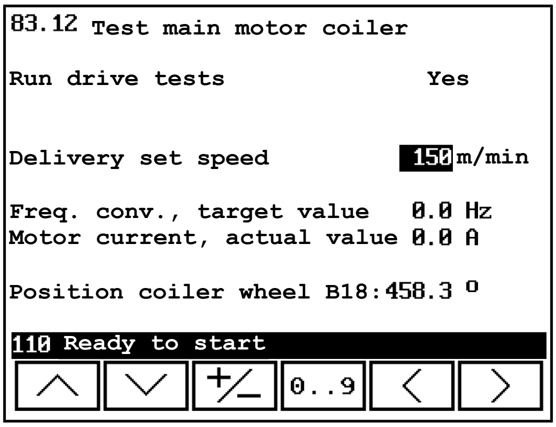
Run drive tests No

Delivery set speed 150 m/min

Delivery actual speed 0 m/min
Freq. conv., target value 0.0 Hz
Motor current, actual value 0.0 A

112 Machine not ready

Figure 117: Data Screen 83.12 Test main motor coiler ***(Option: CBA-5)***



83.12 Test main motor coiler

Run drive tests Yes

Delivery set speed 150 m/min

Freq. conv., target value 0.0 Hz
Motor current, actual value 0.0 A

Position coiler wheel B18: 458.3 °

110 Ready to start

Figure 118: Data Screen 83.12 Test main motor coiler ***(Option: CBA 1200)***

4.5.19 Menu 84 Test/Programming Devices

Tests can be executed in this menu.

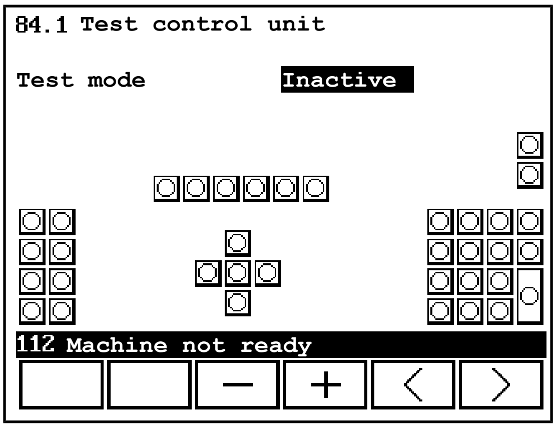
Group of data screens for testing and programming of devices.

4.5.19.1 Data Screen 84.1 Test control unit

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

This data screen allows testing of keys and LEDs.



84.1 Test control unit

Test mode Inactive

112 Machine not ready

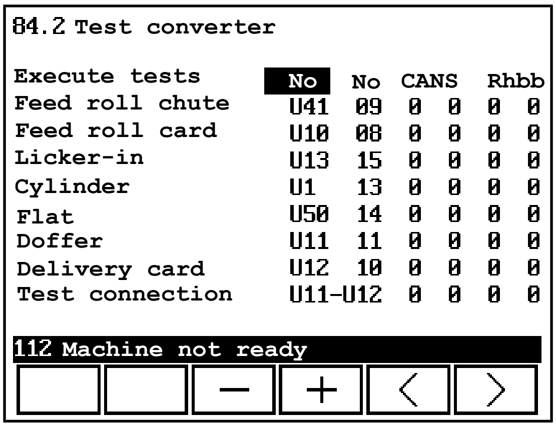
Figure 119: Data screen 84.1 Test control unit

4.5.19.2 Data Screen 84.2 Test converter

Conditions

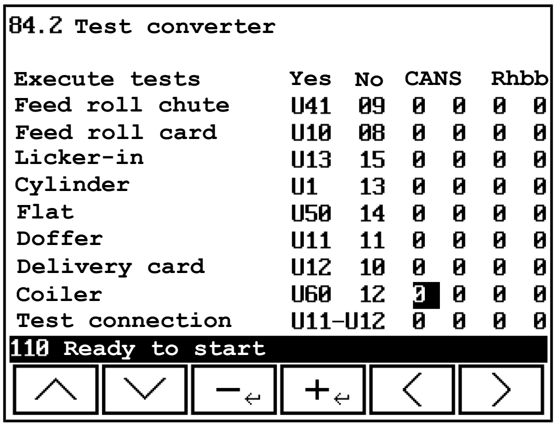
- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen, the frequency converters can be individually energized for test purposes.



```
84.2 Test converter

Execute tests       No   No  CANS    Rhbb
Feed roll chute     U41  09  0   0   0   0
Feed roll card      U10  08  0   0   0   0
Licker-in           U13  15  0   0   0   0
Cylinder            U1   13  0   0   0   0
Flat                U50  14  0   0   0   0
Doffer              U11  11  0   0   0   0
Delivery card       U12  10  0   0   0   0
Test connection     U11-U12  0   0   0   0

112 Machine not ready
```

Figure 120: Data screen 84.2 Test converter **(Option: CBA-5)**



```
84.2 Test converter

Execute tests       Yes  No  CANS    Rhbb
Feed roll chute     U41  09  0   0   0   0
Feed roll card      U10  08  0   0   0   0
Licker-in           U13  15  0   0   0   0
Cylinder            U1   13  0   0   0   0
Flat                U50  14  0   0   0   0
Doffer              U11  11  0   0   0   0
Delivery card       U12  10  0   0   0   0
Coiler              U60  12  0   0   0   0
Test connection     U11-U12  0   0   0   0
110 Ready to start
```

Figure 121: Data screen 84.2 Test converter **(Option: CBA 1200)**

Execute tests:

Testing the frequency converter. See *Doing the Function Test of the Safety Relay* ▶ *172*

Testing frequency converter connection U11-U12. See *Doing the Function Test of the Safety Relay* ▶ *172*

4.5.20 Menu 85 Test Optional Devices

Tests can be executed in this menu.

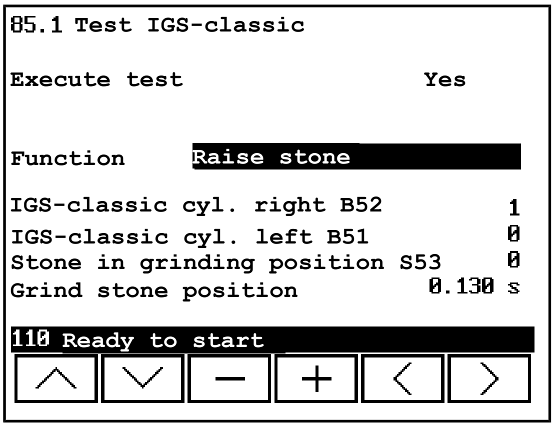
Group of data screens for testing optional devices.

4.5.20.1 Data Screen 85.1 Test IGS-classic

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen all functions of IGS-classic can be tested.



```
85.1 Test IGS-classic

Execute test                     Yes


Function      Raise stone

IGS-classic cyl. right B52         1
IGS-classic cyl. left B51          0
Stone in grinding position S53     0
Grind stone position           0.130 s

110 Ready to start
```

Figure 122: Data screen 85.1 Test IGS-classic

Execute test:

Executing a function test. See *Doing a Function Test of the IGS-classic* ▶ *528*

Function:

Executing a function test. See *Doing a Function Test of the IGS-classic* ▶ *528*

Grind stone position:

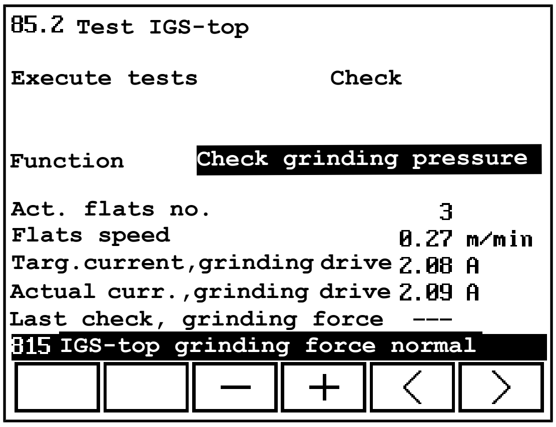
Testing the functions. See *Doing a Function Test of the IGS-classic* ▶ *528*

4.5.20.2 Data Screen 85.2 Test IGS-top

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen all functions of IGS-classic can be tested.



```
85.2 Test IGS-top

Execute tests           Check


Function      Check grinding pressure

Act. flats no.                   3
Flats speed                   0.27 m/min
Targ.current,grinding drive   2.08 A
Actual curr.,grinding drive   2.09 A
Last check, grinding force     ---
315 IGS-top grinding force normal
```

Figure 123: Data screen 85.2 Test IGS-top

Function: Measuring current. See *Examining the Grinding Pressure* ▶ *532*

Act. flats no.: Display of the current number of ground card flats.

Flats speed: Display of the effective speed of the card flats.

Targ.current,grinding drive: Calculated current consumption of drive motor when the grinding pressure has been set correctly.

Actual curr.,grinding drive: Momentary current consumption of the drive motor of the grinding brush (grinding pressure).

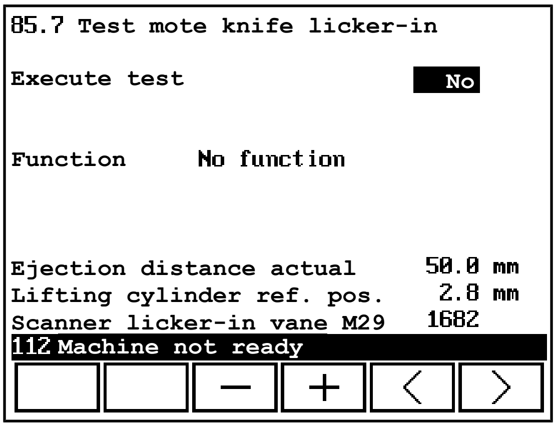
Last check, grinding force: Log (results) of the most recent grinding pressure test, calculated for the previous 10 card flats.

4.5.20.3 Data Screen 85.7 Test mote knife licker-in

Conditions

- Password level 2
- In data screen 80.1, **Test mode** is selected.

In this data screen all functions of the automatic knife adjustment on the licker-in can be tested.



```
85.7 Test mote knife licker-in

Execute test                       No

Function      No function

Ejection distance actual        50.0 mm
Lifting cylinder ref. pos.       2.8 mm
Scanner licker-in vane M29      1682
112 Machine not ready
```

Figure 124: Data screen 85.7 Test mote knife licker-in

Function: The piston rod moves to the selected position.

- **Approach min. position**
- **Approach max. position**
- **Approach ref. position**
- **Approach setpoint pos.**
- **Ejection distance setpoint**

Move to reference positions. See *Adjusting the Electric Cylinder for the Mote Knife ▸ 243*

Moving to target position. See *Adjusting the Electric Cylinder for the Mote Knife ▸ 243*

Checking the adjustment. See *Adjusting the Electric Cylinder for the Mote Knife ▸ 243*

Ejection distance actual:

The current position of the mote knife is displayed.

Lifting cylinder ref. pos.:

The value of the last set reference position is displayed. The value relates to the piston rod of the lift cylinder. If no value is displayed, a valid reference position has not been stored. This position will be determined at the next start of the card.

Scanner licker-in vane M29:

A/D converter value for the position transducer, for adjusting the mote knife.

4.5.21 Extended Data Screens

The following data screens only shows when **Extended** is selected in the field **Operation** in the data screen 40.2.

Screen Number	Description	Page
10.30	**Production set values extended**	*Refer to ▸ 136*
11.31	**Prod. act. val. reg. sliver/deliv.**	*Refer to ▸ 136*
11.32	**Prod. act. val. reg. Sga (batt)**	*Refer to ▸ 137*
11.33	**Prod. act. values reg. chute/sag**	*Refer to ▸ 138*
11.34	**Prod.act.values work elements ext.**	*Refer to ▸ 138*
20.30	**Q-date actual values card feed CV**	*Refer to ▸ 139*
20.31	**Q-data, act. val., card feed spec.**	*Refer to ▸ 140*
30.30	**Information converter ext.**	*Refer to ▸ 141*
30.31	**Information CAN slaves**	*Refer to ▸ 142*
30.32	**Info overview digital inputs**	*Refer to ▸ 142*
30.33	**Info overview digital outputs**	*Refer to ▸ 143*
31.30	**Info exception list**	*Refer to ▸ 143*
31.31	**Info statistic events**	*Refer to ▸ 144*
31.32	**Info Exception Statistik D95K**	*Refer to ▸ 144*
41.30	**Settings extended 1**	*Refer to ▸ 145*
41.31	**Settings extended 2**	*Refer to ▸ 147*
41.32	**Settings extended 3**	*Refer to ▸ 148*
43.30	**Reset configuration**	*Refer to ▸ 149*
60.30	**Value groups preview extended I**	*Refer to ▸ 149*
60.31	**Value groups preview extended II**	*Refer to ▸ 150*
60.33	**Value groups preview extend. IV**	*Refer to ▸ 151*

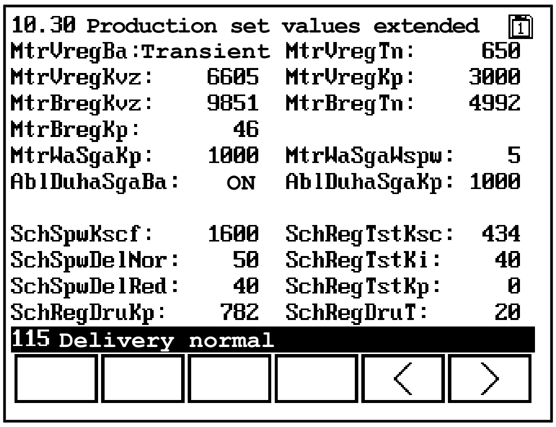
4.5.21.1 Data Screen 10.30 Production set values extended

Conditions

- In data screen 40.2, in the line **Operation**, display mode **Extended** is selected.

This data screen does not contain shift-related production data.

The list of production data is used for software diagnostics.



```
10.30 Production set values extended
MtrVregBa:Transient MtrVregTn:     650
MtrVregKvz:    6605 MtrVregKp:    3000
MtrBregKvz:    9851 MtrBregTn:    4992
MtrBregKp:       46
MtrWaSgaKp:    1000 MtrWaSgaWspw:    5
AblDuhaSgaBa:    ON AblDuhaSgaKp: 1000

SchSpwKscf:    1600 SchRegTstKsc:  434
SchSpwDelNor:    50 SchRegTstKi:    40
SchSpwDelRed:    40 SchRegTstKp:     0
SchRegDruKp:    782 SchRegDruT:     20
115 Delivery normal
```

Figure 125: Data Screen 10.30 Production set values extended

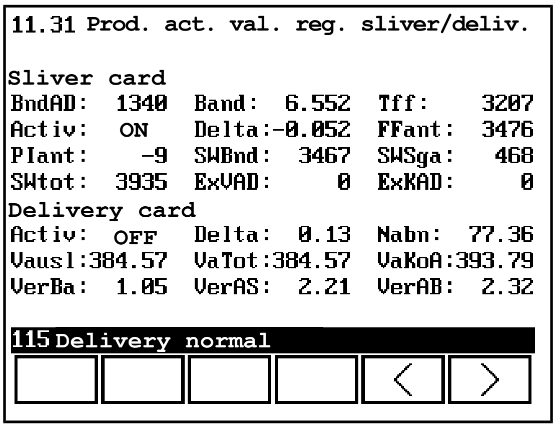
4.5.21.2 Data Screen 11.31 Prod. act. val. reg. sliver/deliv.

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, display mode **Extended** is selected.

This data screen does not contain shift-related production data.

This data screen is used for software diagnostics. All parameters that are not listed are internal control parameters.



```
11.31 Prod. act. val. reg. sliver/deliv.

Sliver card
BndAD:  1340  Band:  6.552  Tff:    3207
Activ:   ON   Delta:-0.052  FFant:  3476
Plant:    -9  SWBnd:  3467  SWSga:   468
SWtot:  3935  ExVAD:     0  ExKAD:     0
Delivery card
Activ:  OFF   Delta:  0.13  Nabn:  77.36
Vausl:384.57  VaTot:384.57  VaKoA:393.79
VerBa:  1.05  VerAS:  2.21  VerAB:  2.32

115 Delivery normal
```

Figure 126: Data Screen 11.31 Prod. act. val. reg. sliver/deliv.

Sliver card

BndAD: A/D converter value for the scanner B6 in the delivery (disk rollers).

Band: Unfiltered card sliver weight in ktex

Active : Levelling of the card sliver weight switched on (disk rollers).

- **OFF** = switched off
- **ON** = switched on

ExVAD: A/D converter value. Specification – delivery speed, external. Option: web card.

ExKAD: A/D converter value. Specification – corrections, web weight, external. Option: web card.

Delivery card :

Active :Levelling of the delivery speed

- **OFF** = switched off
- **ON** = switched on

Nabn: Doffer rpm

Vausl: Delivery speed disk roller unfiltered

VerBa: Draft between the disk rollers and calender rollers of the coiler CBA

VerAS: Draft between doffer and disk rollers

VerAB: Draft between the doffer and calender rolls of the coiler

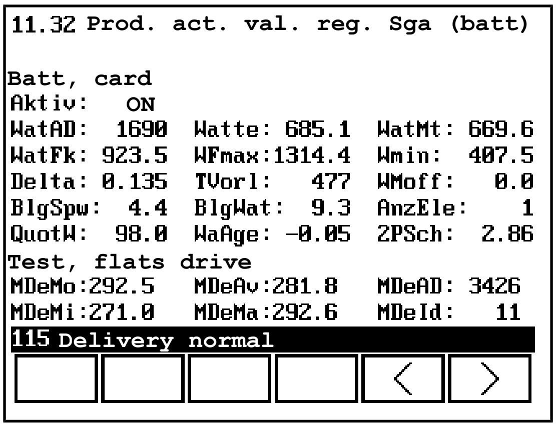
4.5.21.3 Data Screen 11.32 Prod. act. val. reg. Sga (batt)

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, display mode **Extended** is selected.

This data screen displays shift-related production data.

This data screen is used for software diagnostics. All parameters that are not listed are internal control parameters.



```
11.32 Prod. act. val. reg. Sga (batt)

Batt, card
Aktiv:   ON
WatAD:   1690  Watte: 685.1  WatMt: 669.6
WatFk: 923.5  WFmax:1314.4  Wmin:  407.5
Delta: 0.135  TVorl:   477  WMoff:   0.0
BlgSpw:  4.4  BlgWat:  9.3  AnzEle:    1
QuotW:  98.0  WaAge: -0.05  2PSch:  2.86
Test, flats drive
MDeMo:292.5   MDeAv:281.8   MDeAD: 3426
MDeMi:271.0   MDeMa:292.6   MDeId:   11
115 Delivery normal
```

Figure 127: Data Screen 11.32 Prod. act. val. reg. Sga (batt)

Batt, card

Active : Short-term feature

- **OFF** = switched off
- **ON** = switched on

WatAD: A/D converter value for the position transducer B5 in the feed

Batt: Current batt weight standardized

WatMt: Average batt weight standardized (over the last 15 minutes)

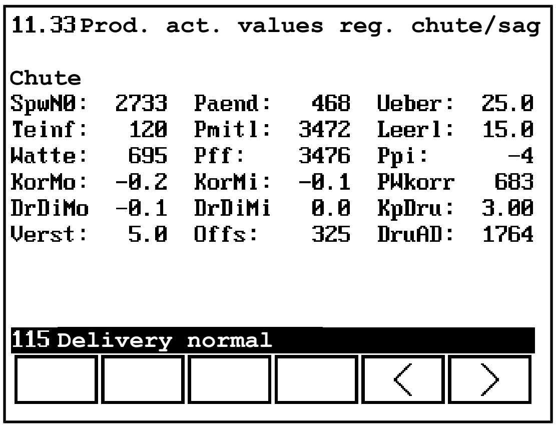
WatFk: Shut-off threshold of the foreign object monitor standardized

4.5.21.4 Data Screen 11.33 Prod. act. values reg. chute/sag

Conditions

- Password level 2.
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen shows shift-related production data.



```
11.33 Prod. act. values reg. chute/sag

Chute
SpwN0:  2733  Paend:   468  Ueber:  25.0
Teinf:   120  Pmitl:  3472  Leerl:  15.0
Watte:   695  Pff:    3476  Ppi:      -4
KorMo:  -0.2  KorMi:  -0.1  PWkorr   683
DrDiMo  -0.1  DrDiMi   0.0  KpDru:  3.00
Verst:   5.0  Offs:    325  DruAD:  1764



115 Delivery normal
```

Figure 128: Data Screen 11.33 Prod. act. values reg. chute/sag

List of production data:

Is used for software diagnostics.

DruAD: A/D converter value for the pressure sensor B23 of the chute.

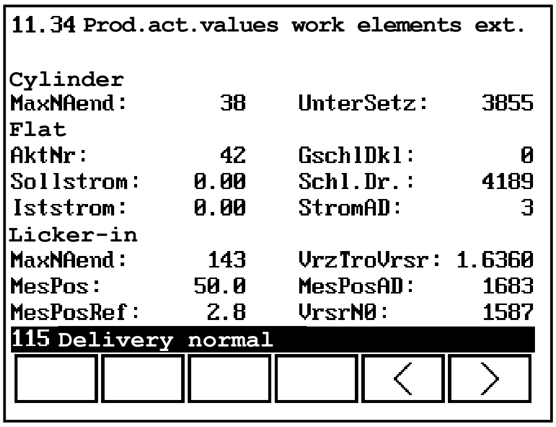
4.5.21.5 Data Screen 11.34 Prod.act.values work elements ext.

Conditions

- Password level 2.
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen shows shift-related production data, such as efficiency and production.

This data screen is used for software diagnostics. All parameters that are not listed are internal control parameters.



```
11.34 Prod.act.values work elements ext.

Cylinder
MaxNAend:        38    UnterSetz:    3855
Flat
AktNr:           42    GschlDkl:        0
Sollstrom:     0.00    Schl.Dr.:     4189
Iststrom:      0.00    StromAD:         3
Licker-in
MaxNAend:       143    VrzTroVrsr: 1.6360
MesPos:        50.0    MesPosAD:     1683
MesPosRef:      2.8    VrsrN0:       1587
115 Delivery normal
```

Figure 129: Data Screen 11.34 Prod.act.values work elements ext.

Flat

ActNo.: Number of card flats counted since the reference card flat.

GschlDekl: Number of card flats processed since the start of the IGS-Top grinding cycle.

Target current: IGS-Top grinding brush drive.

Actual current: IGS-Top grinding brush drive.

StromAD: A/D converter value, actual current for IGS-Top grinding drive M55.

Licker-in :

VrzTroVrsr: Mathematical draft calculation between the actual speeds of licker-in and cylinder.

MeasPos: Current position of the mote knife.

MesPosAD: A/D converter value for the position of the piston rod M29.

MesPosRef: Reference position of the piston rod.

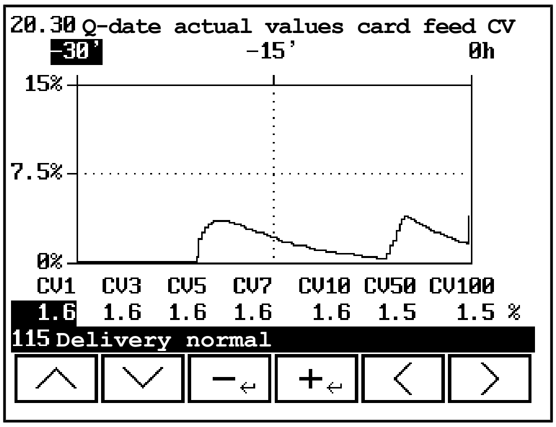
VrsrNO: Speed of licker-in.

4.5.21.6 Data Screen 20.30 Q-date actual values card feed CV

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen shows a graphic presentation in accordance with the entered parameters.



20.30 Q-date actual values card feed CV

CV1	CV3	CV5	CV7	CV10	CV50	CV100	
1.6	1.6	1.6	1.6	1.6	1.5	1.5	%

115 Delivery normal

Figure 130: Data Screen 20.30 Q-date actual values card feed CV

Time base for the diagram: The time base (24 h / 8 h / 30 min) can be changed without any loss of data resulting from the changeover.

A diagram is shown with the selected time base.

Sorting length: The cut length of the fed-in batt is determined using the two left keys.

Example of the calculation CV 100:

100 divided by the total drafting = meters of the incoming batt.

Values on the last line: Coefficients of variation of the incoming batt.

4.5.21.7 Data Screen 20.31 Q-data, act. val., card feed spec.

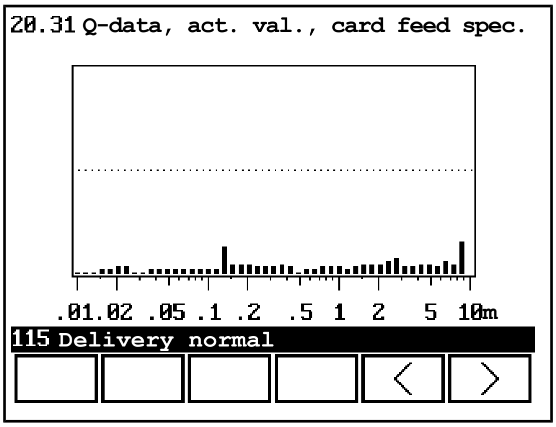
Conditions

- In data screen 40.2, in the line **Operation** , the display mode **Extended** is selected.

In this data screen the actual values of the quality data are shown.

The range of wavelengths in the spectrogram from 0.01 m...10 m is shown.

Wavelengths measured in yards must be converted accordingly (0. 914 x ... m).



20.31 Q-data, act. val., card feed spec.

115 Delivery normal

Figure 131: Data Screen 20.31 Q-data, act. val., card feed spec.

Values: The level of amplitude is max. 255.

With the aid of this value you can determine the wavelength in which the highest amplitudes (peaks) are located.

Values on the last line: Coefficients of variation of the incoming batt.

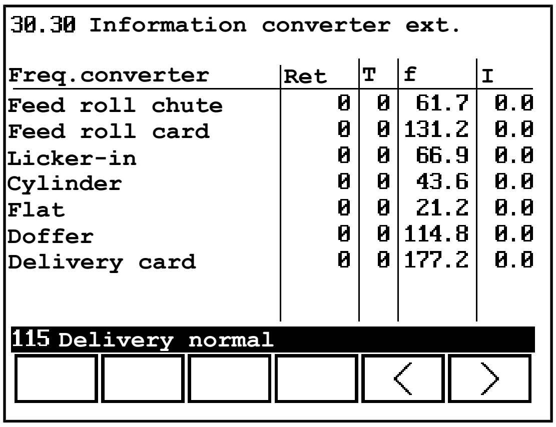
4.5.21.8 Data Screen 30.30 Information Converter Ext

Conditions

- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

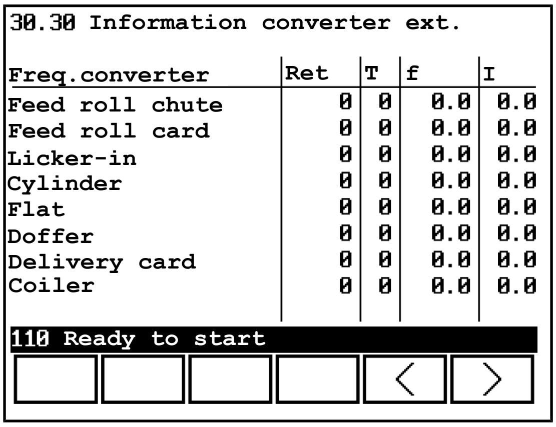
In this data screen information concerning the frequency converter is shown.

Cylinder drive with frequency converter



```
30.30 Information converter ext.

Freq.converter     |Ret |T |f    |I
Feed roll chute       0| 0| 61.7| 0.0
Feed roll card        0| 0|131.2| 0.0
Licker-in             0| 0| 66.9| 0.0
Cylinder              0| 0| 43.6| 0.0
Flat                  0| 0| 21.2| 0.0
Doffer                0| 0|114.8| 0.0
Delivery card         0| 0|177.2| 0.0

115 Delivery normal
```

Figure 132: Data Screen 30.30 Information converter ext. **(Option: CBA-5)**



```
30.30 Information converter ext.

Freq.converter     |Ret |T |f    |I
Feed roll chute       0| 0|  0.0| 0.0
Feed roll card        0| 0|  0.0| 0.0
Licker-in             0| 0|  0.0| 0.0
Cylinder              0| 0|  0.0| 0.0
Flat                  0| 0|  0.0| 0.0
Doffer                0| 0|  0.0| 0.0
Delivery card         0| 0|  0.0| 0.0
Coiler                0| 0|  0.0| 0.0
110 Ready to start
```

Figure 133: Data Screen 30.30 Information converter ext. **(Option: CBA 1200)**

Freq.converter: Frequency converter of the selected machine part.

Ret: Protocol repetitions on the CAN bus.

T: Temperature (in degrees Celsius) of the frequency converter heat sinks.

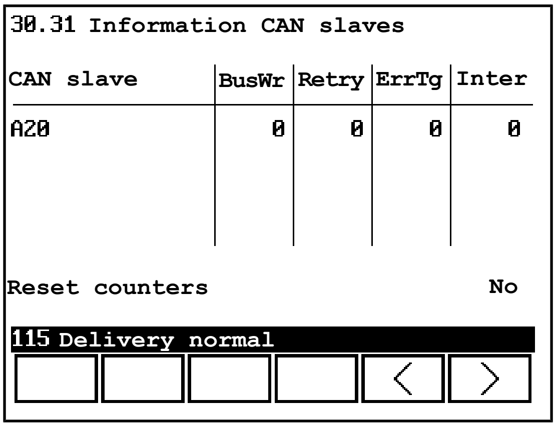
f: Target frequency (in Hz) of the frequency converters.

I: Output current (ampere) – frequency converter.

4.5.21.9 Data Screen 30.31 Information CAN Slaves

Conditions:
– In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

In this data screen details of the CAN nodes are shown.



30.31 Information CAN slaves

CAN slave	BusWr	Retry	ErrTg	Inter
A20	0	0	0	0

Reset counters No

115 Delivery normal

Figure 134: Data Screen 30.31 Information CAN slaves

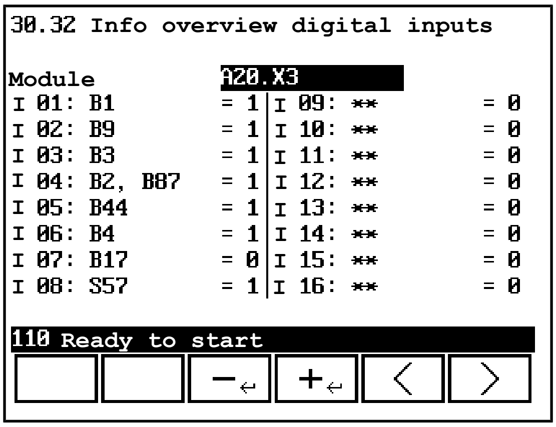
CAN slave :

Overview of the information concerning modules that are attached on the CAN bus.

4.5.21.10 Data Screen 30.32 Info overview digital inputs

Conditions
– In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

In this data screen the inputs can be observed during production operation.



```
30.32 Info overview digital inputs

Module          A20.X3
I 01: B1        = 1|I 09: **      = 0
I 02: B9        = 1|I 10: **      = 0
I 03: B3        = 1|I 11: **      = 0
I 04: B2, B87   = 1|I 12: **      = 0
I 05: B44       = 1|I 13: **      = 0
I 06: B4        = 1|I 14: **      = 0
I 07: B17       = 0|I 15: **      = 0
I 08: S57       = 1|I 16: **      = 0

110 Ready to start
```

Figure 135: Data Screen 30.32 Info overview digital inputs

Module:

Use the plus key or the minus key to select the IO module, for which the states of the individual inputs should be shown.

For each input the status is shown:

0 = low (no voltage present)

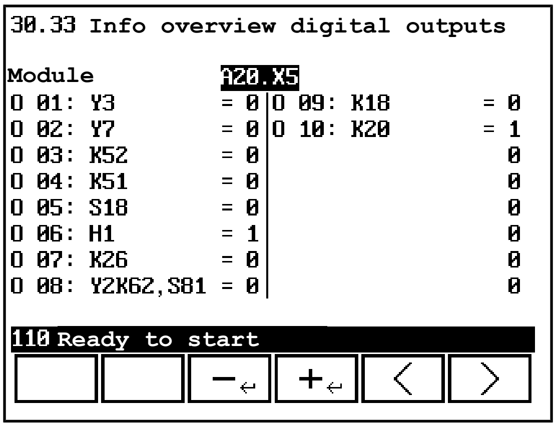
1 = high (voltage present)

4.5.21.11 Data Screen 30.33 Info overview digital outputs

Conditions

- In data screen 40.2 in the line **Operation**, the display mode **Extended** is selected.

In data screen 30.33 the outputs can be observed during production operation.



```
30.33 Info overview digital outputs

Module          A20.X5
O 01: Y3        = 0|O 09: K18     = 0
O 02: Y7        = 0|O 10: K20     = 1
O 03: K52       = 0|                0
O 04: K51       = 0|                0
O 05: S18       = 0|                0
O 06: H1        = 1|                0
O 07: K26       = 0|                0
O 08: Y2K62,S81 = 0|                0

110 Ready to start
```

Figure 136: Data Screen 30.33 Info overview digital outputs

Module :

Use the plus key or minus key to select the IO module for which the states of the individual outputs should be shown.

For each output the status is shown:

0 = low (no voltage present)

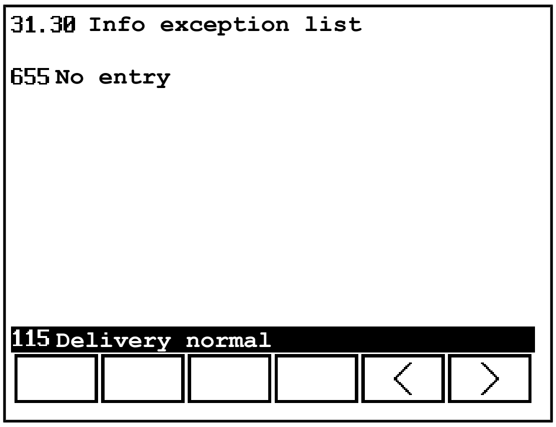
1 = high (voltage present)

4.5.21.12 Data Screen 31.30 Info exception list

Conditions

- In data screen 40.2, in the line **Operation** , the display mode **Extended** is selected.

In this data screen exception errors in the software sequences are listed.



```
31.30 Info exception list

655 No entry







115 Delivery normal
```

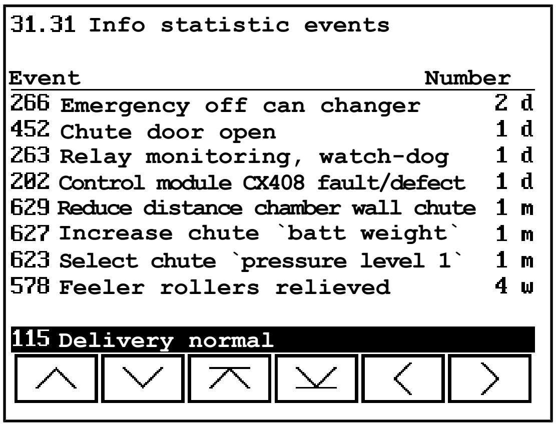
Figure 137: Data Screen 31.30 Info exception list

4.5.21.13 Data Screen 31.31 Info statistic events

Conditions

- In data screen 40.2 in the line **Operation**, the display mode **Extended** is selected.

In this data screen the events that have occurred, sorted by type and frequency, are shown.



```
31.31 Info statistic events

Event                                  Number
266 Emergency off can changer          2 d
452 Chute door open                    1 d
263 Relay monitoring, watch-dog        1 d
202 Control module CX408 fault/defect  1 d
629 Reduce distance chamber wall chute 1 m
627 Increase chute `batt weight`       1 m
623 Select chute `pressure level 1`    1 m
578 Feeler rollers relieved            4 w

115 Delivery normal
```

Figure 138: Data Screen 31.31 Info statistic events

Event:

d: Fault

m: Maintenance warning

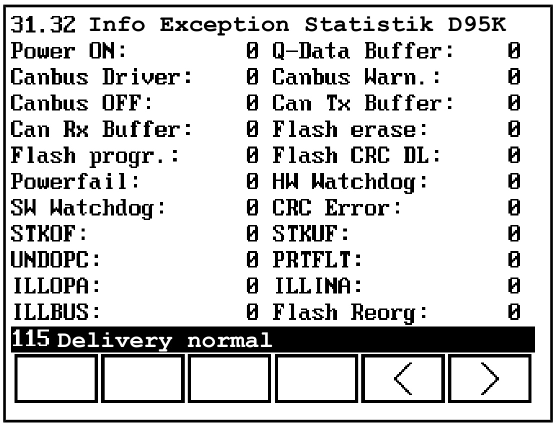
w: Warning

4.5.21.14 Data Screen 31.32 Info Exception Statistik D95K

Conditions

- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

The information related to the device D95K are shown in this data screen.



```
31.32 Info Exception Statistik D95K
Power ON:          0 Q-Data Buffer:    0
Canbus Driver:     0 Canbus Warn.:     0
Canbus OFF:        0 Can Tx Buffer:    0
Can Rx Buffer:     0 Flash erase:      0
Flash progr.:      0 Flash CRC DL:     0
Powerfail:         0 HW Watchdog:      0
SW Watchdog:       0 CRC Error:        0
STKOF:             0 STKUF:            0
UNDOPC:            0 PRTFLT:           0
ILLOPA:            0 ILLINA:           0
ILLBUS:            0 Flash Reorg:      0
115 Delivery normal
```

Figure 139: Data Screen 31.32 Info Exception Statistik D95K

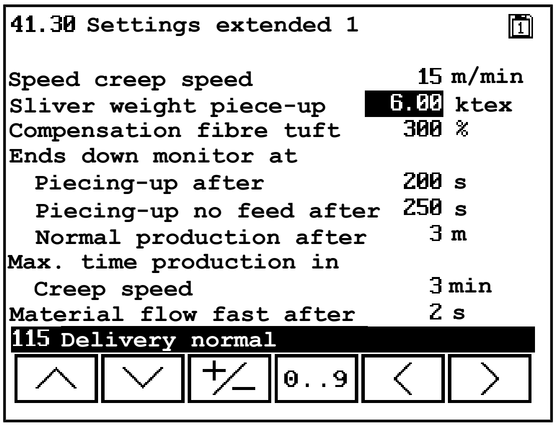
List: List of exception error counters of the D95K module.

4.5.21.15 Data Screen 41.30 Settings extended 1

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

In this data screen basic settings are made for keeping the machine clean.



```
41.30 Settings extended 1

Speed creep speed                15 m/min
Sliver weight piece-up         6.00 ktex
Compensation fibre tuft         300 %
Ends down monitor at
  Piecing-up after              200 s
  Piecing-up no feed after      250 s
  Normal production after         3 m
Max. time production in
  Creep speed                     3 min
Material flow fast after          2 s
115 Delivery normal
```

Figure 140: Data Screen 41.30 Settings extended 1

Speed creep speed: The delivery of the card runs with the prescribed speed.

Delivery speed, slow	15 m/min**
**: Guide value	

Sliver weight piece-up :

Prescribed sliver weight when drawing in the sliver if there is still no sliver between the disk rollers. See *Setting the Sliver Weight during the Drawing-In* ▸ *215*.

Sliver Weight Default during Drawing In	
Disk roller, width: 9 mm	4 – 12 ktex
Disk roller, width: 15 mm	8 – 20 ktex
Step roller width: 6 mm	≤ 8 ktex (PES or swing with PES)
Step roller width: 9 mm	> 8 ktex (PES or swing with PES)

Compensation fibre tuft :

When drawing in the card silver, the speed of the feed roller is increased by the selected percentage factor, depending on length of the downtime, during 0 - 1.5 seconds.

Select the setting so that the web is not disturbed by the clearer roller when starting production.

Compensation – fiber fringe	100 – 550 %

Ends down monitor at :

Piecing-up after :

When drawing in the sliver with drawn-in batt in the feed, the sliver monitor is not active in creep speed during the specified time period.

Thread-in after	1 – 300 s
Default	200 s

Piecing-up no feed after :

When drawing in the sliver, but with no lap in the feed, sliver monitoring is not active at creep speed during the preselected time period.

Thread-in after	1 – 250 s

Normal production after :

If there is a sliver break after a completed draw-in procedure, sliver monitoring switches off the doffer after the specified meters.

Switch-off delay – sliver breakage	3 m

Max. time production in :

Creep speed :

If there is a sliver break after a completed draw-in procedure, sliver monitoring switches off the doffer after the specified meters. See *Setting the Switch-Off Delay of the Doffer in the Slow Speed to the Maximum ▶ 162*.

Creep speed timeout	1 – 10 min
Default	3

Material flow fast after :

If the light scanner is covered during the specified time period, the doffer switches automatically to high speed. However, the automatic ramp-up must be activated. Data screen 41.1.

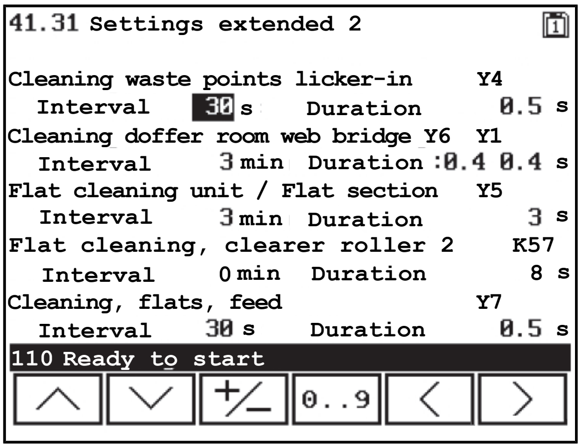
Delay – automatic acceleration, doffer	2 s

4.5.21.16 Data Screen 41.31 Settings extended 2

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

In this data screen basic settings are made for keeping the machine clean. Only change the default values, if other causes for possible contamination are eliminated.



```
41.31 Settings extended 2

Cleaning waste points licker-in      Y4
  Interval      30 s    Duration    0.5 s
Cleaning doffer room web bridge Y6   Y1
  Interval      3 min  Duration :0.4 0.4 s
Flat cleaning unit / Flat section    Y5
  Interval      3 min  Duration       3 s
Flat cleaning, clearer roller 2     K57
  Interval      0 min  Duration       8 s
Cleaning, flats, feed                Y7
  Interval     30 s    Duration     0.5 s
110 Ready to start
```

Figure 141: Data Screen 41.31 Settings extended 2

Flat cleaning, clearer roller 2 K57:

The flat waste chamber can be cleaned with intermittent duty of flat cleaning brush 2. The cleaning can be carried out by 2 methods that follows:

- Method 1: Periodic cleaning
- Method 2: Cleaning after timeout of sensor B11

The 2 methods can be combined. The preset operation is method 2.

Method 1 The peroidic duty of flat cleaning brush 2 improves the cleaning of waste chamber and avoid lapping of both flat cleaning brushes 1 and 2. The interval and duration of stop can be set in this data screen 41.31.

Method 2 In case of sensor B11 detects a choke while a time of timeout ×1/3 or during a time of timeout ×2/3, the flat cleaning brush 2 is stopped for the selected time set in this data screen 43.31. Thus the choke is loosened and extracted by the suction system. Timeout is preset in data screen 41.32. See *Data Screen 41.32 Settings extended 3 ▸ 148*

Interval:	
Range	0 – 300 min
Default	0 min
Description: With selection of 0 min, the intermittent duty is deactivated.	

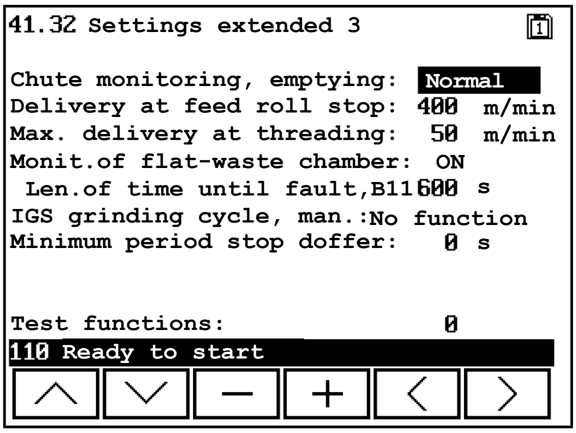
Duration:	
Range	0 – 10 sec
Default	8 sec
Description: With selection of 0 min, the intermittent duty is deactivated; the stops after detection of a choke by B11 are deactivated too.	

4.5.21.17 Data Screen 41.32 Settings extended 3

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

In this data screen basic set-up values of the machine are set.



```
41.32 Settings extended 3

Chute monitoring, emptying:  Normal
Delivery at feed roll stop: 400  m/min
Max. delivery at threading:  50  m/min
Monit.of flat-waste chamber:  ON
 Len.of time until fault,B11600  s
IGS grinding cycle, man.:No function
Minimum period stop doffer:    0  s


Test functions:                0
110 Ready to start
```

Figure 142: Data Screen 41.32 Settings extended 3

Chute monitoring, emptying : See *Doing the Configuration of the Feed Unit and the Cylinder ▸ 212*.

Delivery at feed roll stop : See *Stopping the Doffer ▸ 357*

Max. delivery at threading : This is where the speed at start-up can be set.

This is the speed that will be taken when starting production until the light sensor of the coiler is covered.

Max. delivery when threading	15 – 80 m/min
Default	50 m/min

Monit.of flat-waste chamber: Monitoring of flat waste chamber can be acitvated here.

Len.of time until fault,B11: In case of sensor B11 detects a choke while a time of timeout ×1/3 or during a time of timeout ×2/3, the flat cleaning brush 2 is stopped for the selected time set in this data screen 43.31. Thus the choke is loosened and extracted by the suction system.

Range	5 – 600 sec
Default	600 sec

IGS grinding cycle, man. : With the password level master, a manual grinding cycle can be executed.

Function:

- **No function**
- **IGS-classic**
- **IGS-top**

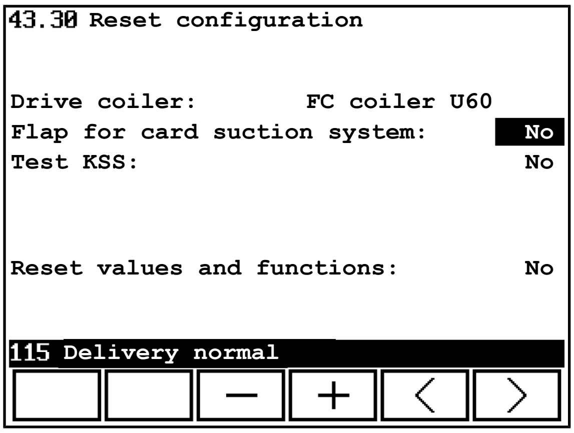
Test functions : For test purposes only.

4.5.21.18 Data Screen 43.30 Reset configuration

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen is for test purposes, as well as for resetting all production values and set-up values to their default values.



```
43.30 Reset configuration

Drive coiler:          FC coiler U60
Flap for card suction system:      No
Test KSS:                          No


Reset values and functions:        No


115 Delivery normal
```

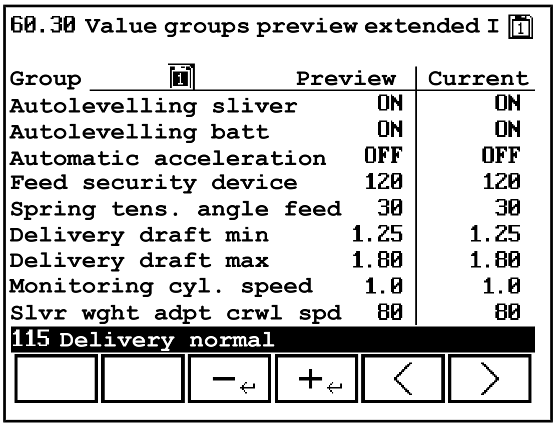
Figure 143: Data Screen 43.30 Reset configuration

4.5.21.19 Data Screen 60.30 Value groups preview extended I

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen provides an overview of production value groups.



60.30 Value groups preview extended I

Group	Preview	Current
Autolevelling sliver	ON	ON
Autolevelling batt	ON	ON
Automatic acceleration	OFF	OFF
Feed security device	120	120
Spring tens. angle feed	30	30
Delivery draft min	1.25	1.25
Delivery draft max	1.80	1.80
Monitoring cyl. speed	1.0	1.0
Slvr wght adpt crwl spd	80	80

115 Delivery normal

Figure 144: Data Screen 60.30 Value groups preview extended I

Autolevelling sliver : Configuration in data screen 41.1

Autolevelling batt : Configuration in data screen 41.2

Automatic acceleration : Configuration in data screen 41.1

Feed security device : Configuration in data screen 41.2

Spring tens. angle feed : Configuration in data screen 41.2

Delivery draft min : Configuration in data screen 41.2

Delivery draft max : Configuration in data screen 41.2

Monitoring cyl. speed : Configuration in data screen 41.2

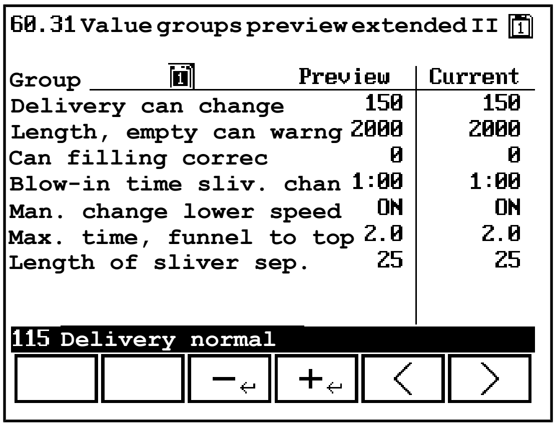
Slvr wght adpt crwl spd : Configuration in data screen 41.1

4.5.21.20 Data Screen 60.31 Value groups preview extended II

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen provides an overview of production value groups.



60.31 Value groups preview extended II

Group	Preview	Current
Delivery can change	150	150
Length, empty can warng	2000	2000
Can filling correc	0	0
Blow-in time sliv. chan	1:00	1:00
Man. change lower speed	ON	ON
Max. time, funnel to top	2.0	2.0
Length of sliver sep.	25	25

115 Delivery normal

Figure 145: Data Screen 60.31 Value groups preview extended II

Delivery can change: Configuration in data screen 42.3

Length, empty can warng: Configuration in data screen 42.3

Can filling correc: Configuration in data screen 42.3

Blow-in time sliv. chan: Configuration in data screen 42.3

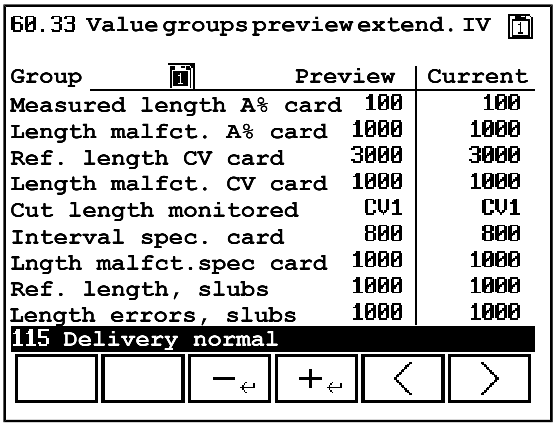
Man. change lower speed: Configuration in data screen 42.3

4.5.21.21 Data Screen 60.33 Value groups preview extend. IV

Conditions

- Password level 2
- In data screen 40.2, in the line **Operation**, the display mode **Extended** is selected.

This data screen provides an overview of information concerning production value groups.

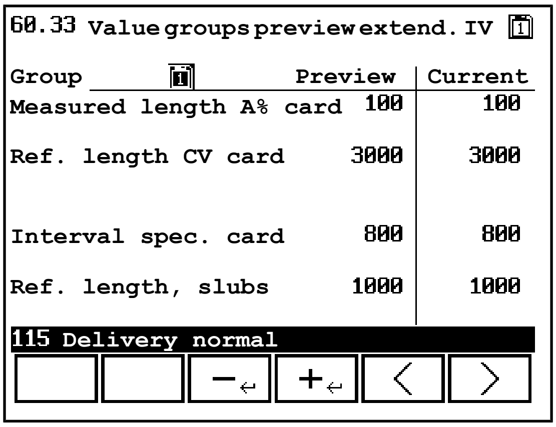


60.33 Value groups preview extend. IV

Group	Preview	Current
Measured length A% card	100	100
Length malfct. A% card	1000	1000
Ref. length CV card	3000	3000
Length malfct. CV card	1000	1000
Cut length monitored	CV1	CV1
Interval spec. card	800	800
Lngth malfct.spec card	1000	1000
Ref. length, slubs	1000	1000
Length errors, slubs	1000	1000

115 Delivery normal

Figure 146: Data Screen 60.33 Value groups preview extend. IV ***(Option: Integrated sliver monitor)***



60.33 Value groups preview extend. IV

Group	Preview	Current
Measured length A% card	100	100
Ref. length CV card	3000	3000
Interval spec. card	800	800
Ref. length, slubs	1000	1000

115 Delivery normal

Figure 147: Data Screen 60.33 Value groups preview extend. IV ***(Option: Rieter quality monitor RQM)***

Measured length A% card : Configuration in data screen 22.1

Length malfct. A% card : Configuration in data screen 22.1

Ref. length CV card : Configuration in data screen 22.2

Length malfct. CV card : Configuration in data screen 22.2

Cut length monitored : Configuration in data screen 22.2

Interval spec. card : Configuration in data screen 22.2

Lngth malfct.spec card : Configuration in data screen 22.4

Ref. length, slubs : Configuration in data screen 22.5

Length errors, slubs : Configuration in data screen 22.5

5 Commissioning

This chapter contains the information about the commissioning of the machine. Only Rieter technicians or Rieter-approved technicians are permitted to do the commissioning of the machine.

5.1 Introduction to Commissioning

The commissioning work has 4 different situations that follows:

Initial commissioning after installation

Machines that are produced by Rieter must be commissioned by Rieter personnel.

See Initial Commissioning without Material

However, if the installation or initial commissioning is executed by a third party, Rieter rejects all and any form of liability.

Commissioning after assortment change

After each assortment change, the settings has to be made accordingly.

See *Setting the Machine into Operation* ▸ *207*

Commissioning after maintenance and repair work

After the maintenance and repair work, the machine has to be commissioned.

See *Commissioning without Material* ▸ *153*

Recommissioning after temporary decommissioning

For recommissioning, the following check list must be used.

See Check list for the Commissioning

5.2 Commissioning without Material

This section contains the information about commissioning without material for the parts that follows:

- Operating unit
- Machine configuration
- Door locking mechanism
- Control unit
- Safety relay
- Sensors
- Drives
- Coiler

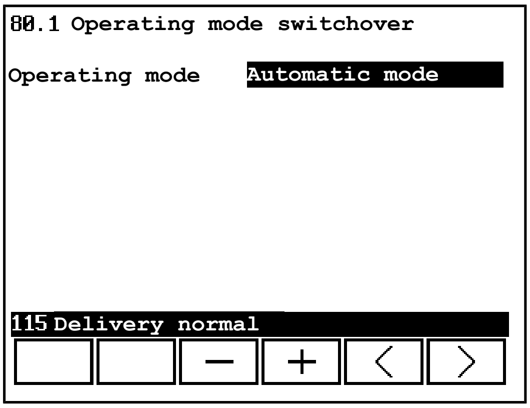
5.2.1 Setting the Operating Unit

This section contains the information about commissioning work of operating unit.

5.2.1.1 Setting the Operating Mode

Operating mode	Function
Service mode	Grinding and replacing of the clothing can be done in the menu 81.
Test mode	Test functions in the menu from 82 to 85 can be done.
Change configuration	The data screen 43.1 and 43.2 can be changed.
Automatic mode	Production operation is started for the machine.

1. Enter the password for the level 2.
2. Select the data screen 80.1.



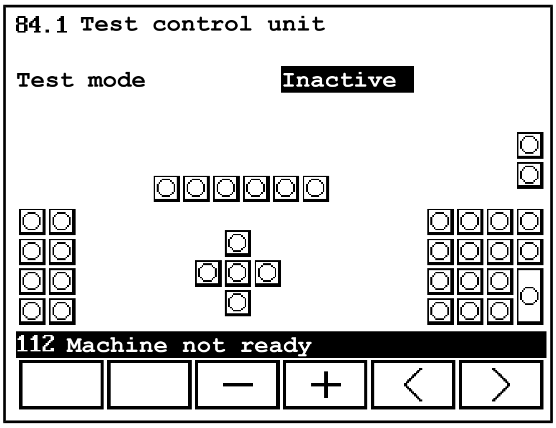
```
80.1 Operating mode switchover

Operating mode     Automatic mode




115 Delivery normal
```

Figure 148: Data screen 80.1

3. Refer to the above table to select the correct operating mode.

Result The operating mode is set.

5.2.1.2 Doing the Test of the Operating Unit



84.1 Test control unit

Test mode Inactive

112 Machine not ready

Figure 149: Data screen 84.1

1. Select the data screen 84.1.
2. Select the option **Active** in the field **Test mode**.
3. If the LED does not come on, replace the operating unit.
4. To stop the test mode, tap the stop key.

Result The test of the operating unit is done.

5.2.2 Setting the Machine Configuration

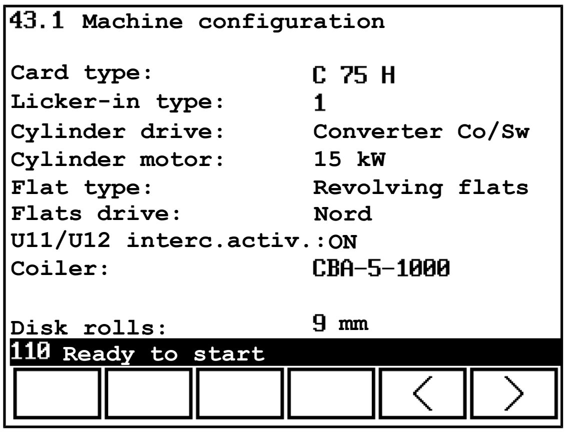
This section contains the information about how to set some basic configuration of the machine.

5.2.2.1 Setting the Mode for Configuration

1. Select the data screen 80.1.
2. In the field **Operating mode**, select **Change configuration**.
   ⇨ The data screen 43.1 and 43.2 can be changed.

Result The mode for configuration is set.

5.2.2.2 Doing the Configuration of the Machine Equipment



```
43.1 Machine configuration

Card type:              C 75 H
Licker-in type:         1
Cylinder drive:         Converter Co/Sw
Cylinder motor:         15 kW
Flat type:              Revolving flats
Flats drive:            Nord
U11/U12 interc.activ.:ON
Coiler:                 CBA-5-1000

Disk rolls:             9 mm
110 Ready to start
```

Figure 150: Data screen 43.1

For Card type	
C 75 L	L = Low production
C 75 M	M = Medium production
C 75 H	H = High production
C 75 W Web Sliver	Version with cross apron at the delivery unit
C 75 W Card Web N	Version without cross apron at the delivery unit
C 75 W Card Web S	Version prepared for compacting rollers

For Cylinder drive	
Converter Co/Sw	500 – 930 rpm
Converter MMF	500 – 750 rpm

For Disk rolls	
Disk roller, width: 9 mm	4 – 12 ktex
Disk roller, width: 15 mm	8 – 20 ktex
Step roller, width: 6 mm	≤ 8 ktex (PES or swing with PES)
Step roller, width: 9 mm	> 8 ktex (PES or swing with PES)

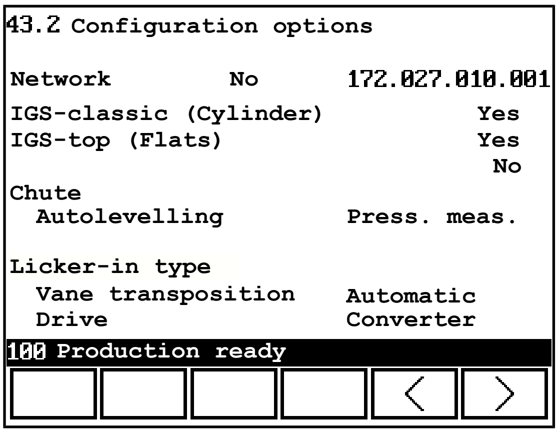
1. Enter the machine type in the field **Card type** .
2. Enter the number of licker-in 1 or 3 in the field **Licker-in type**
3. Enter the type of the cylinder drive in the field **Cylinder drive** .
4. Enter the type of card flats **Revolving flats** or **Fixed flats** in the field **Flat type** .
5. Enter the version of flats drive **Nord** or **Varvel** in the field **Flats drive**.
6. Enter **Yes** or **No** in the field **U11/U12 interc.activ.**

- ⇨ If **Yes** is selected, the machine receives electrical support when the power is cut. Make sure the intermediate circuit connection between frequency converters U11 and U12 is wired.
- ⇨ If **No** is selected, the machine does not receive electrical support when the power is cut. If the supply voltage drops below 360 volt, the machine production is stopped.

7. Enter the type of the coiler in the field **Coiler**.
8. Enter the width of the disk rollers in the field **Disk rolls**.

Result The machine equipment is set.

5.2.2.3 Doing the Configuration of the Options



```
43.2 Configuration options

Network         No      172.027.010.001
IGS-classic (Cylinder)             Yes
IGS-top (Flats)                    Yes
                                    No
Chute
  Autolevelling           Press. meas.

Licker-in type
  Vane transposition      Automatic
  Drive                   Converter
100 Production ready
```

Figure 151: Data Screen 43.2

1. Select the operating mode **Change configuration** in data screen 80.1.
   - ⇨ The data screen 43.1 and 43.2 can be changed.

Configuring the Network

1. Select the data screen 43.2.
2. Select the option network **No** or **Yes** in the field **Network**.
   - ⇨ The connection of SPIDERweb and UNIcontrol, with Rieter Remote Panel is set.
3. Enter the network address for each machine with the numerical keys on the operating unit. (The numbers can be found in the electrical system documentation.)
   - ⇨ The network is configured.

Configuring the IGS-Classic

1. Configure data screen 43.2 **Configuration options**.
2. In the line **IGS-classic (Cylinder)** configure the option.

3. Select the option **No** or **Yes** in the field **IGS-classic (Cylinder)** .

   ⇨ The IGS-classic option is configured.

Configuring the IGS-Top

1. Select the data screen 43.2 **Configuration options**.
2. Select the option **No** or **Yes** in the line **IGS-top (flats)**.

   ⇨ The IGS-Top option is configured.

Configuring the Rieter Quality Monitor

1. Select the data screen 43.2 **Configuration options**.
2. Select the option **No** or **Yes** in the line **Rieter Quality Monitor (RQM)**.

   ⇨ The Rieter quality monitor is configured.

Configuring the Knife Adjustment

1. Select the data screen 43.2 **Configuration options**.
2. Select the knife adjustment **Automatic** or **Manual** in the line **Vane transposition**.

   ⇨ The knife adjustment option is configured.

Configuring the Drive of Licker-in

1. Select the data screen 43.2 **Configuration options**.
2. Select the knife adjustment **Converter** or **Change gears** in the line **Drive**.

   ⇨ The drive of licker-in is configured.

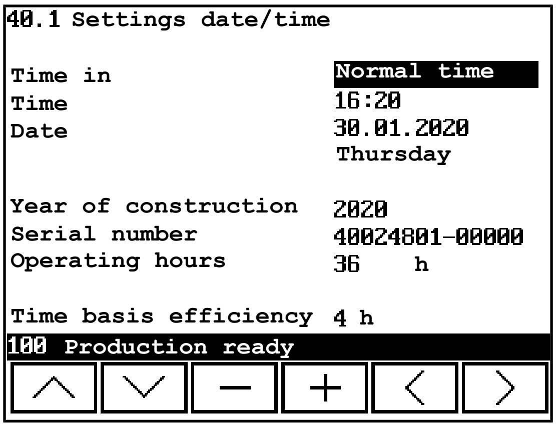
Result The configuration of the options is done.

5.2.2.4 Setting the Date and the Time

For Date	
Calendar date day	DD/MM/YYYY [8]

For Time	
12 h	AM/PM HH/MM [8]
24 h	HH/MM [5]

For Time in	
Usual time	**Normal time**
Time is 1 hour forward	**Summer time**



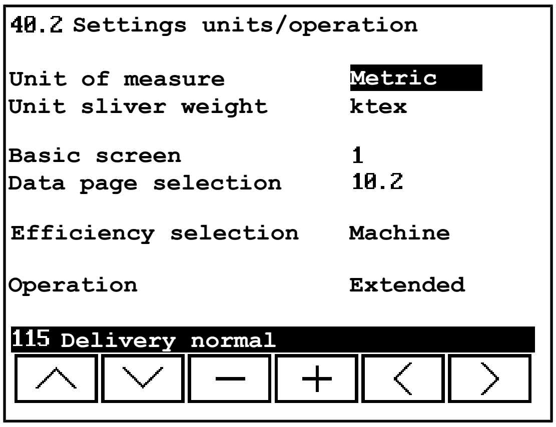
```
40.1 Settings date/time

Time in                      Normal time
Time                         16:20
Date                         30.01.2020
                             Thursday

Year of construction         2020
Serial number                40024801-00000
Operating hours              36     h

Time basis efficiency        4 h
100 Production ready
```

Figure 152: Data screen 40.1 Settings date/time

1. Select the data screen 40.1.
2. Enter the current date in the field **Date**.
3. Enter the necessary time system in the field **Time**.
4. Enter the current season in field **Time in**.
5. Adjust the efficiency calculation. See *Adjusting the Efficiency Calculation and the Efficiency Display* ▸ *160*
6. Select the necessary display format.

Result The date and the time are set.

5.2.2.5 Setting the Units of Measurement and the Operation



```
40.2 Settings units/operation

Unit of measure              Metric
Unit sliver weight           ktex

Basic screen                 1
Data page selection          10.2

Efficiency selection         Machine

Operation                    Extended

115 Delivery normal
```

Figure 153: Data screen 40.2

1. Select the data screen 40.2.

Entering the Units

1. Select the necessary unit of measure in **Unit of measure**
2. Select the necessary unit for sliver weight in the field **Unit sliver weight**

Setting the Display

1. Select the necessary overview screen in the field **Basic screen**.
2. Select the favorite data screen in **Data page selection**
3. Adjust the efficiency calculation and efficiency display. See *Adjusting the Efficiency Calculation and the Efficiency Display* ▸ *160*

Setting the Display Mode for Electronic Support

1. To set the display mode for electronic support, select **Extended** in the field **Operation**.
2. To select the display mode for production operation, select **Standard** in the field **Operation** .

Result The units and the operations are set.

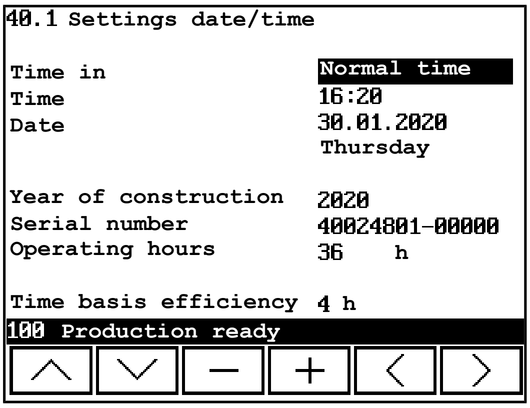
5.2.2.6 Adjusting the Efficiency Calculation and the Efficiency Display

Orientation Time basis for calculation of machine efficiency that follows:

- 2 h
- 4 h
- 8 h

Example 4 h, in this case the machine efficiency is calculated and displayed in the basic screen according to the last 4 hours. The shorter the time basis, the quicker the efficiency reacts to the events (for example, machine downtimes).

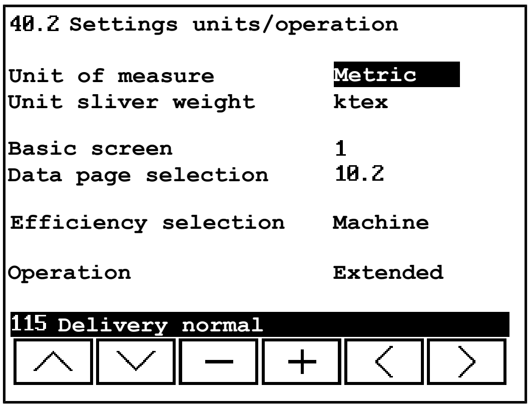
1. Select the data screen 40.1.



```
40.1 Settings date/time

Time in                  Normal time
Time                     16:20
Date                     30.01.2020
                         Thursday

Year of construction     2020
Serial number            40024801-00000
Operating hours          36    h

Time basis efficiency    4 h
100 Production ready
```

Figure 154: Data screen 40.1 Settings date/time

2. Enter the time basis in the field **Time basis efficiency**.
3. Select the data screen 40.2.



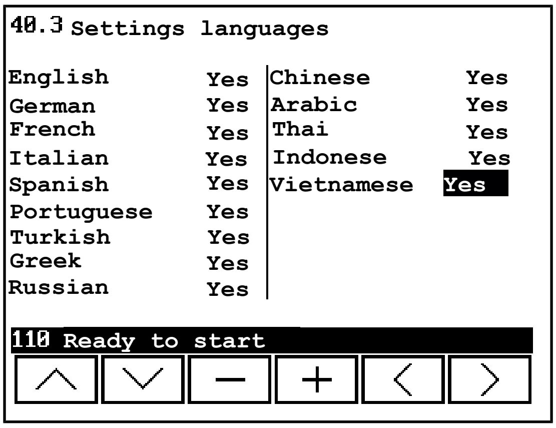
```
40.2 Settings units/operation

Unit of measure          Metric
Unit sliver weight       ktex

Basic screen             1
Data page selection      10.2

Efficiency selection     Machine

Operation                Extended

115 Delivery normal
```

Figure 155: Data screen 40.2 Settings units/operation

4. Enter the necessary display option in the field **Efficiency selection**.
   - ⇨ **Production** : The production efficiency indicates the ratio of the actual production of the machine to the theoretically-possible production. The time in which the machine is switched off is included in the calculation.
   - ⇨ **Machine** : The machine efficiency reflects the machine availability during these hours. The time in which the machine is not used without a queued fault is not included in the calculation.

Result The efficiency calculation and efficiency display are adjusted.

5.2.2.7 Selecting the Languages



```
40.3 Settings languages

English        Yes  |Chinese      Yes
German         Yes  |Arabic       Yes
French         Yes  |Thai         Yes
Italian        Yes  |Indonese     Yes
Spanish        Yes  |Vietnamese   Yes
Portuguese     Yes  |
Turkish        Yes  |
Greek          Yes  |
Russian        Yes  |

110 Ready to start
```

Figure 156: Data screen 40.3

1. Select the data screen 40.3.
2. Select **Yes** for all the languages that are necessary.
3. Select **No** for the languages that are not necessary other than English and German.

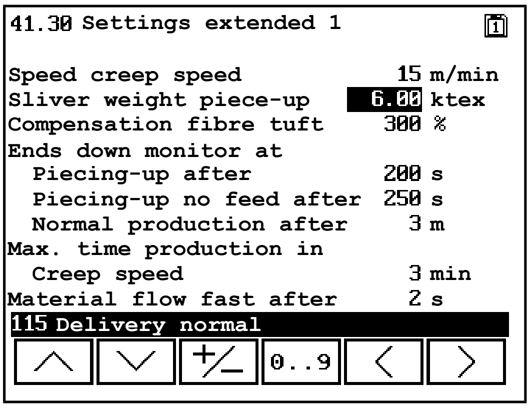
Result The necessary language is selected.

5.2.2.8 Setting the Switch-Off Delay of the Doffer in the Slow Speed to the Maximum

Orientation This setting is only necessary in rare situations. Normally the operator can keep the default setting.

Setting the Maximum Switch-off Delay	
Creep speed timeout	1 – 10 min
Default	3

1. Select data screen 41.30 **Settings extended 1**.



```
41.30 Settings extended 1

Speed creep speed             15 m/min
Sliver weight piece-up      6.00 ktex
Compensation fibre tuft      300 %
Ends down monitor at
  Piecing-up after           200 s
  Piecing-up no feed after   250 s
  Normal production after      3 m
Max. time production in
  Creep speed                  3 min
Material flow fast after       2 s
115 Delivery normal
```

Figure 157: Data Screen 41.30 Settings extended 1

2. Read the current switch-off delay in the filed **Creep speed**.
   ⇨ The current switch-off delay is noted and can be set later.
3. Set the maximum switch-off delay in the field **Creep speed**.
   ⇨ The maximum switch-off delay is set.

Result The switch-off delay of the doffer in the slow speed is set to maximum.

5.2.3 Setting the Door Locking Mechanism

This section contains the information about the commissioning work of the door locking mechanism.

5.2.3.1 Adjusting the Door Locking Mechanism and the Safety Switch

Orientation This section contains the information about how to adjust the door lock mechanism and the safety switch.

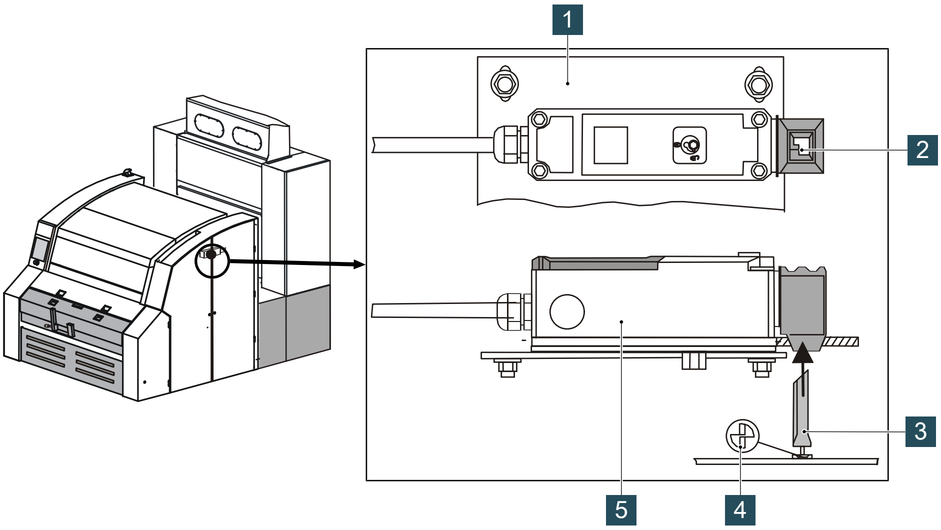


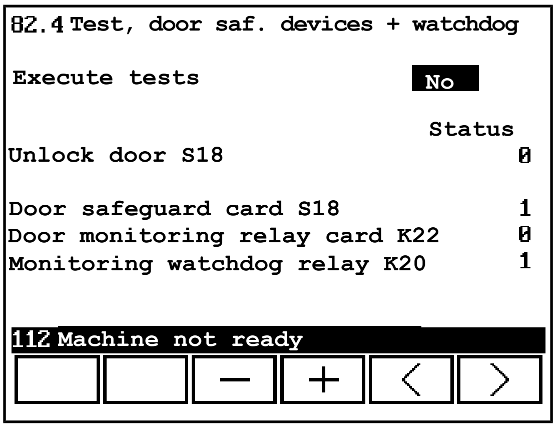
Figure 158: Doors lock mechanism of the card machine

1. Attach the switching cam 3 with the captive screws 4.
2. Attach the switching cam 3 into the opening 2 of the safety switch 5.
   ⇨ The small movement of the switching cam 3 is possible.
3. Adjust the installed switching cam 3 with the fastening plate 1.

Doing the Function Test for the Safety Switch Electrically

1. Select the data screen 82.4 **Test, door saf. devices + watchdog**.
2. Read the status in the field **Door safeguard card S18**.
3. Close a door.
4. If the value in the field **Door safeguard card S18** is 1.
   ⇨ The output signal of the limit switch is in sequence.
5. If the value in the field **Door safeguard card S18** is 0, adjust the limit switch.
6. If the value in the field **Door safeguard card S18** is 0, adjust the switching cam 3 until the switch point is more than the limit.
7. Open a door.
8. If the value in the field **Door safeguard card S18** is 0.
   ⇨ The output signal of the limit switch is in sequence.
9. If the value in the field **Door safeguard card S18** is 1, adjust a limit switch.
10. If the value in the field **Door safeguard card S18** is 1, adjust the switching cam 3 until the switch point is more than the limit.
    ⇨ The safety switch function test is done electrically.

Doing the Function Test for the Door Lock Mechanism



```
82.4 Test, door saf. devices + watchdog

Execute tests                    No

                                  Status
Unlock door S18                        0

Door safeguard card S18                1
Door monitoring relay card K22         0
Monitoring watchdog relay K20          1


112 Machine not ready
```

Figure 159: Data screen 82.4

Prerequisites Make sure that the criteria are obeyed:

- ✓ Password level 2 is selected.
- ✓ In the data screen 80.1 **Operating mode switchover** the operating mode **Test mode** is selected.

1. Select the data screen 82.4 **Test, door saf. devices + watchdog**.
2. Start the function test in the field **Execute tests**.
   - ⇨ Test function test is started.
3. To select the next line, tap the forward cursor key.
   - ⇨ The next line is highlighted.
4. To start the function of the selected line, tap the plus key.
   - ⇨ The text **Unlock door S18** is shown.
5. Tap the start key.
   - ⇨ The status of the line **Unlock door S18** changes to 1.
   - ⇨ The door is opened.
6. Tap the stop key.
   - ⇨ The status of the line **Unlock door S18** changes to 0.
   - ⇨ The door is locked again.
7. Do the function test of the safety relay. See *Doing the Function Test of the Safety Relay ▸ 172*
   - ⇨ The function test is done for the door lock mechanism.

Result The door lock mechanism and the safety switch are adjusted.

5.2.3.2 Adjusting the Safety Device of the Hood (CBA-5)

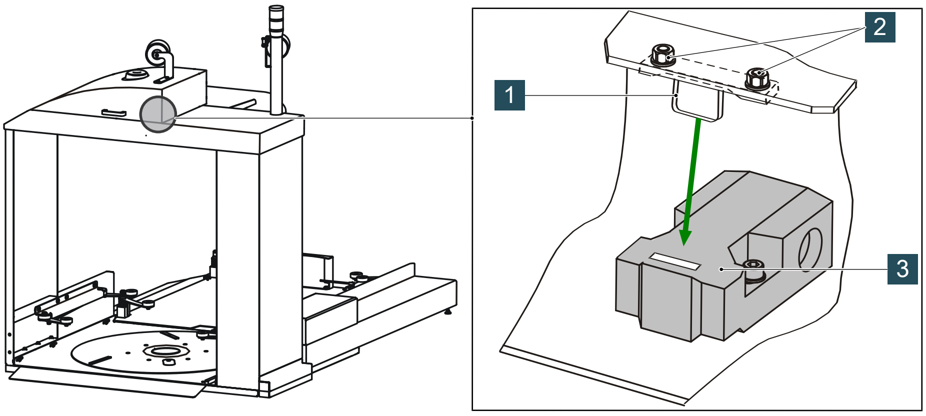


Figure 160: Safety device of the hood

Prerequisites Make sure that the criteria are obeyed:

✓ The machine is at a standstill.

1. To adjust the hood 1, use the screws 2.
2. To adjust the safety switch 3, use the screws at the safety switch 3.
3. Make sure that the hood 1 is put into the opening of the safety switch 3.
4. Do the function test of the safety relay. See *Doing the Function Test of the Safety Relay* ▸ *172*

Result The safety device of the hood is adjusted.

5.2.3.3 Adjusting the Safety Device of the Hood (CBA 1200)

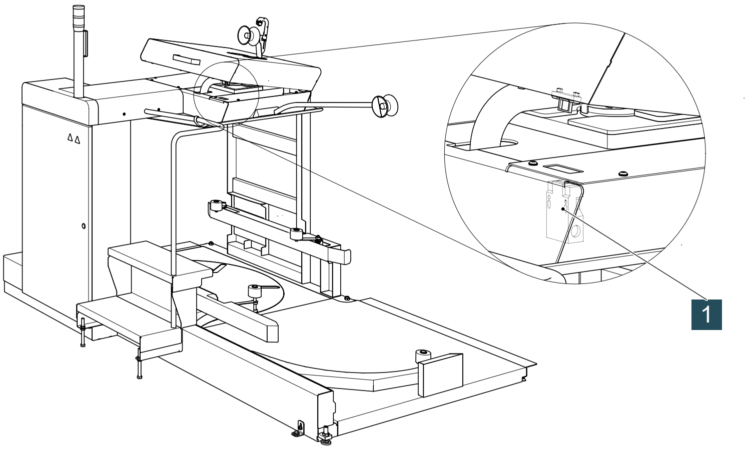


Figure 161: Hood safety device

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the screws on the safety switch 1 to adjust the position of the safety switch.

2. Make sure that the hook of the cover goes into the safety switch correctly.
3. Do the function test of the safety relay.

Result The safety device of the hood is adjusted.

5.2.4 Setting the Control Unit

This section contains the information about commissioning work of control unit.

5.2.4.1 Doing a Cold Start

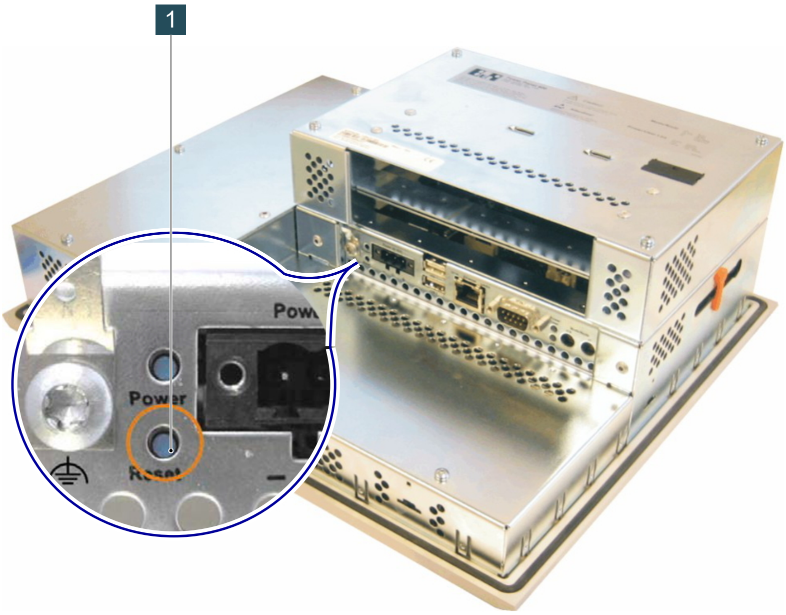


Figure 162: Reset key of operating unit

1. Push the reset key 1 with a sharp pin.
   - ⇨ A cold start is started.
   - ⇨ All the passwords are set again to the initial status.
   - ⇨ All other setting values are remain intact.

Result A cold start is done.

5.2.4.2 Replacing the Battery of the Control System

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

NOTICE

Battery is replaced in de-energized condition

The machine settings and shift data in the data memory are lost.

▶ Do NOT change the battery in the de-energized condition.

NOTICE

Static electricity!

Damage to the electronic components

▶ Before work on electronic components, release the static electricity by touching the machine ground cable or other ground connections.

Removing the Battery in the Control System

1. Remove the cover 2 with a screwdriver.

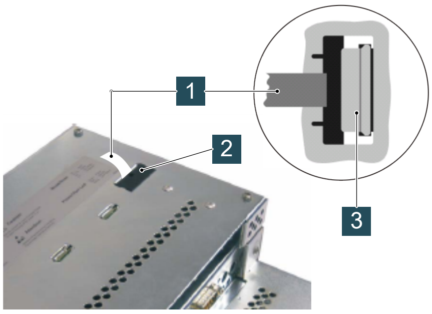


Figure 163: Battery

2. Pull out the strip 1.

   ⇨ The battery 3 is removed.

Installing the Battery in the Control System

1. Put the strip 1 in the correct position in the battery compartment.

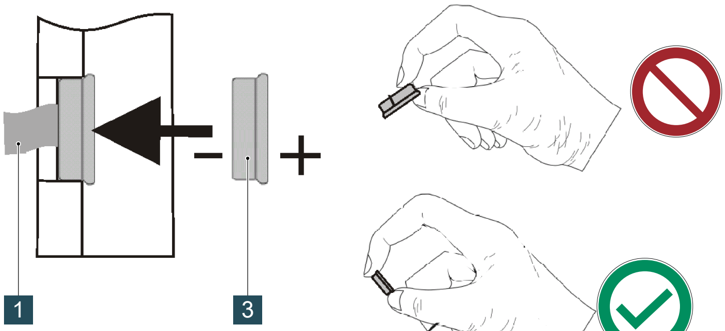


Figure 164: Replace battery

2. Do not touch the battery with non-insulated tools.
3. Hold the battery with 2 fingers on the side.
4. Put the new battery 3 into the battery compartment with the correct polarity.
5. Install the cover 2.

   ⇨ The battery 3 is installed.

Result The battery in the control system is replaced.

5.2.4.3 Replacing the Module D95K

Orientation This section contains the information about how to remove and install the module D95K.

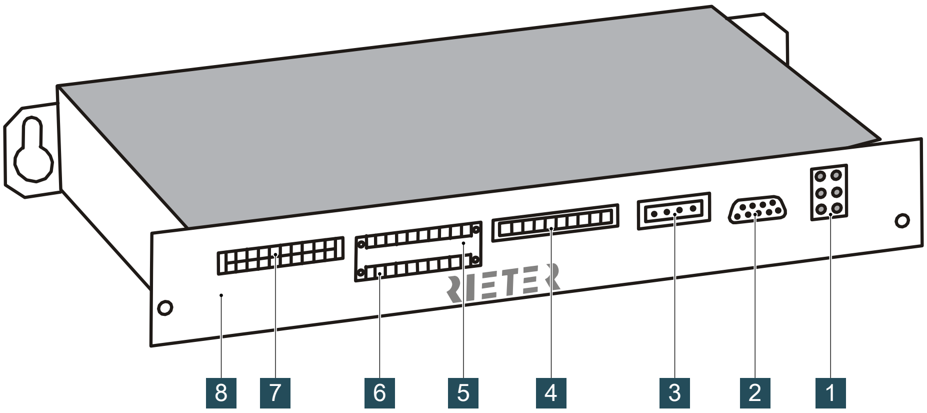


Figure 165: Module D95K

1	LED status display	2	CAN bus interface
3	Power supply	4	Digital counter input
5	Digital input	6	Digital output
7	Analog input	8	Front operating unit

Removing the Module D95K

1. Disconnect all plug connections from the LED status display 2 to the analog input 7.
2. Loosen the 2 screws.
3. Remove the module.

   ⇨ The module D95K is removed.

Installing the Module D95K

1. Install the module in the correct position.
2. Tighten the 2 screws.
3. Connect all plug connections from the LED status display 2 to the analog input 7.

⇨ The module D95K is installed.

Result The module D95K is replaced.

5.2.4.4 Setting the Node Address of the CAN I/O Module CX408

The rotary switches SW0 and SW1 should be set according to the electrical documentation.

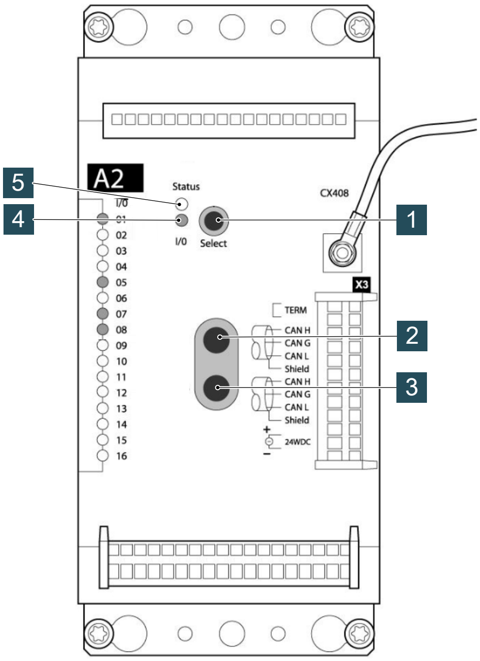

5
4
A2
Status
I/0
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
I/0
Select
CX408
1
X3
TERM
CAN H
CAN G
CAN L
Shield
CAN H
CAN G
CAN L
Shield
+
24WDC
−
2
3

Figure 166: LED 2 status on the module CX408

1	Select button	2	SW1 switch
3	SW0 switch	4	I/O (input/output)
5	Status		

LED 2 "Status" on module CX408 is flashing green (2 pulses)

The controller visually indicates the tripping of the time monitor for refreshing the digital and analog outputs.

If a CAN object remains off within the set time (default: 640 ms), the affected outputs will be reset and the green LED starts flashing with a double pulse.

After the arrival of the first valid object, the current values are immediately applied.

However, the green LED only reverts to normal operation after a time delay of 30 s. The time delay is used to identify occasional failures or drop-outs of the outputs. Otherwise these faults can only be detected with much difficulty.

Serial No.	Cause	Determination	Remedy
1	Controller shows the tripping of the time monitor	LED flashes green (2 pulses)	Identify the cause for the tripping of the time monitor.
		Other situation	Execute a hardware reset (switch off/switch on).

LED 2 on module CX408 is illuminated orange or red

LED 2 shows the status

Serial No.	Cause	Determination	Remedy
1	Normal operation	Data exchange is running LED is illuminated green	None!
		Other situation	Continue with: 2
2	Faulty outputs	The CAN bus controller is in grid operation. LED is illuminated orange	None!
		Other situation	Continue with: 3
3	Outputs are not supplied or there is no monitoring of the sensor supply	LED is flashing orange	Execute a hardware reset (switch off/switch on).
		Other situation	Continue with: 4
4	Warning: The node number was altered during operation	LED flashes red	Reset the node number. The new node number will be ignored and the function of the node remains intact.
		Other situation	Continue with: 5
5	CAN-IO module may have an error	CAN-IO module	Execute the function check on CAN I/O module CX408.
		Function check negative	Check feed and wiring.
		Final measure	Replace module.
		Other situation	Execute a hardware reset (switch off/switch on).

LED 2 "Status" on module CX408 during the run-up phase

Run-up phase means: Initialization and establishing the connection with the CAN network.

If an error occurs during the run-up phase, the green LED stops flashing. The error is displayed through the periodic flashing of the red LED.

Serial No.	Cause	Determination	Remedy
1	Run-up phase	Fault-free	None!

Serial No.	Cause	Determination	Remedy
		LED is flashing green	
		Other situation	Continue with: 2
2	Knot switch on 0	LED is flashing red (1 pulse)	Set node switch.
		Other situation	Continue with: 3
3	Configuration EEPROM not valid	LED is flashing red (1 pulse)	Contact ELO Service.
		Other situation	Continue with: 4
4	Error at initialization of the CAN module	LED is flashing red (2 pulses)	Contact ELO Service
		Other situation	Replace CX408 module

Function Check CAN I/O Module CX408

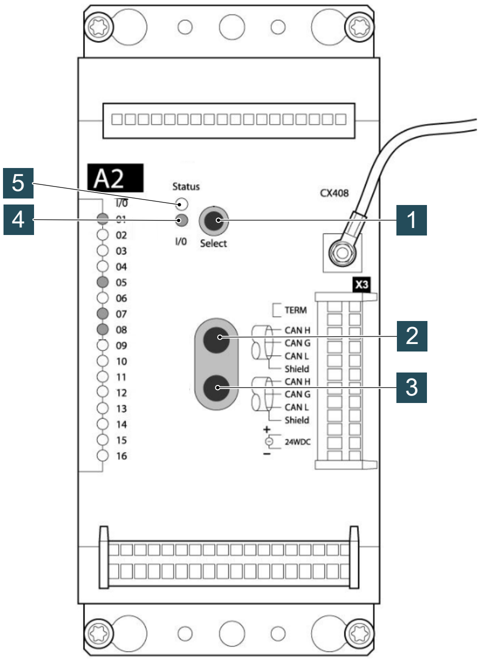

5
4
A2
Status
I/0
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
I/0
Select
CX408
1
X3
TERM
CAN H
CAN G
CAN L
Shield
CAN H
CAN G
CAN L
Shield
+
24WDC
−
2
3

Figure 167: LED 2 status on the module CX408

1	Select button	2	SW1 switch
3	SW0 switch	4	I/O (input/output)
5	Status		

The 16 LEDs show either the status of the outputs or the status of the inputs. Acitcate the button 1 to switch over the LEDs. If the LED 4 is illuminated green, then the 16 LEDs show the status of the inputs. If the LED 4 is illuminated yellow, then the 16 LEDs show the status of the outputs.

The function check is done by determination of the status LED 5.

Status LED 5	Description
LED is illuminated green.	The module is functioning correctly.
LED is flashing orange.	The power supply of the outputs is incorrect.
LED is illuminated orange.	The outputs are incorrect.

5.2.5 Setting the Safety Relay

This section contains the information about commissioning work of safety relay.

5.2.5.1 Doing the Function Test of the Safety Relay

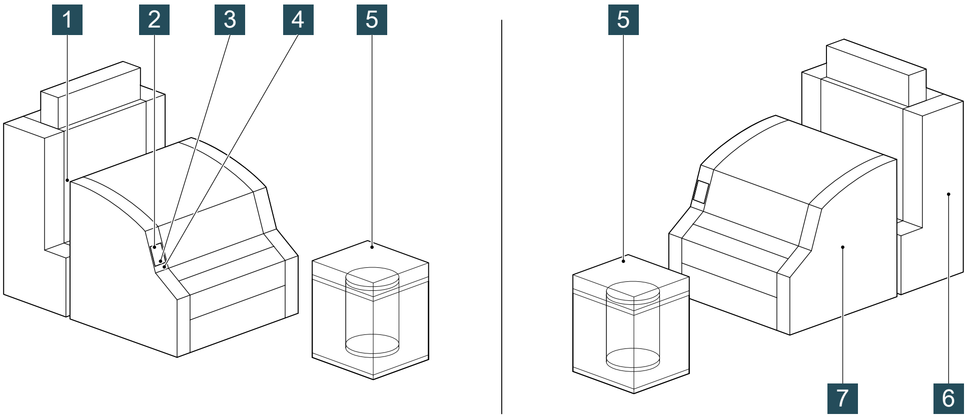


Figure 168: Safety relays

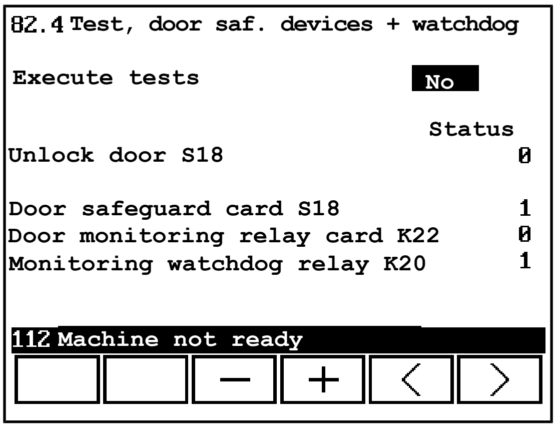
1	Key switch for the card flat grinding	2	Safety relay "Watchdog"
3	Frequency converter	4	Emergency stop button
5	Hood lock at the sliver coiling device	6	Door lock at the card chute
7	Door lock at the drive side		

1. Set the main switch to the position ON.
2. Make sure that the machine is ready for the operation.
   ⇨ The message **Ready to start** is shown.
3. Examine the elements 1, 2, 3, 4, 5, 6, and 7 for the correct operation.
4. If the elements 1, 2, 3, 4, 5, 6, and 7 operate correctly, enter the function test in the Protocol Safety-Circuit-Loop.
5. If 1 element of the elements 1, 2, 3, 4, 5, 6, and 7 does not operate correctly, replace the full unit where this defective element is a part of and do the function test of the replaced unit.

Doing the Function Test of the Emergency Stop Button

1. Push the emergency stop button S8 4.
   - ⇨ The status message 250 **Emergency stop button card S8** is shown.
   - ⇨ The result of the function test is OK.
2. Unlock the emergency stop button S8 4.
   - ⇨ The message **Ready to start** is shown.
   - ⇨ The function test of the emergency stop button is done.

Doing the Function Test of the Safety Relay “Watchdog”



```
82.4 Test, door saf. devices + watchdog

Execute tests                     No

                                Status
Unlock door S18                      0

Door safeguard card S18              1
Door monitoring relay card K22       0
Monitoring watchdog relay K20        1


112 Machine not ready
```

Figure 169: Data screen 82.4

Prerequisites Make sure that the criteria are obeyed:

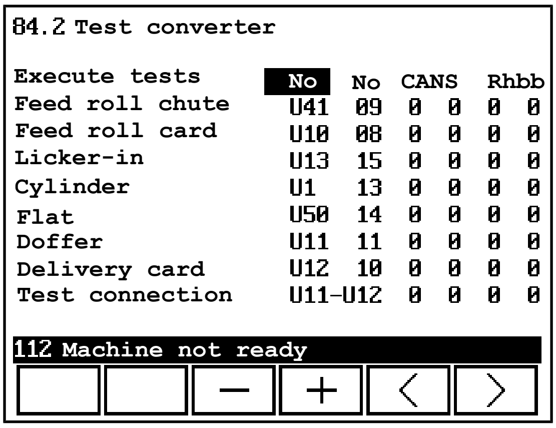
- ✓ Password level 2
- ✓ The operating mode **Test mode** is selected in the data screen 80.1.

1. Select the data screen 82.4 **Test, door saf. devices + watchdog**.
2. Start the function test in the field **Execute tests**.
   - ⇨ The function test is started.
3. To select the next line, tap the forward key.
   - ⇨ The next line is highlighted.
4. To change the function of the selected line, tap the plus key.
   - ⇨ The text **Watchdog on K20** is shown.
5. Tap the stop key.
   - ⇨ The safety relay K20 change to the state 0.
   - ⇨ The state of the field **Door monitoring relay card K22** changes to 1.
6. Tap the start key.
   - ⇨ The safety relay K20 change to the state 1.
   - ⇨ The state of the line **Door monitoring relay card K22** changes to 0.

⇨ The result of the function test is OK.

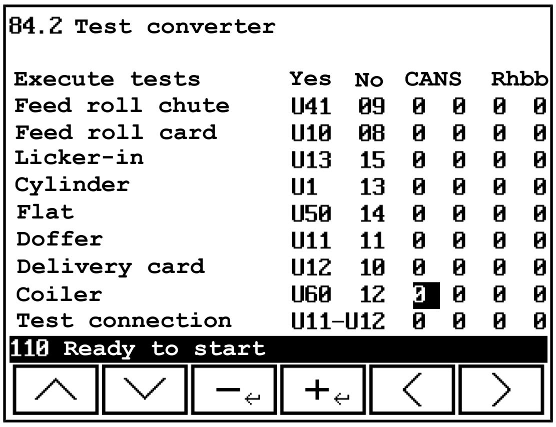
⇨ The function test of the safety relay Watchdog is done.

Doing the Function Test of the Frequency Converter



```
84.2 Test converter

Execute tests        No    No  CANS   Rhbb
Feed roll chute      U41   09  0   0  0   0
Feed roll card       U10   08  0   0  0   0
Licker-in            U13   15  0   0  0   0
Cylinder             U1    13  0   0  0   0
Flat                 U50   14  0   0  0   0
Doffer               U11   11  0   0  0   0
Delivery card        U12   10  0   0  0   0
Test connection      U11-U12   0   0  0   0

112 Machine not ready
```

Figure 170: Data screen 84.2 ***(Option: CBA-5)***



```
84.2 Test converter

Execute tests        Yes   No  CANS   Rhbb
Feed roll chute      U41   09  0   0  0   0
Feed roll card       U10   08  0   0  0   0
Licker-in            U13   15  0   0  0   0
Cylinder             U1    13  0   0  0   0
Flat                 U50   14  0   0  0   0
Doffer               U11   11  0   0  0   0
Delivery card        U12   10  0   0  0   0
Coiler               U60   12  0   0  0   0
Test connection      U11-U12   0   0  0   0
110 Ready to start
```

Figure 171: Data screen 84.2 ***(Option: CBA 1200)***

Prerequisites Make sure that the criteria are obeyed:

✓ Password level 2

✓ The operating mode **Test mode** is selected in the data screen 80.1.

1. Select the data screen 84.2 **Test converter**.
2. In the field **Execute tests**, select **Yes**.

   ⇨ The function test is started.

   ⇨ The target frequency converter can be selected.
3. To select the frequency converter for the function test, tap the forward key.

   ⇨ The field with the selected frequency converter is highlighted.
4. To start the function test, tap the plus key.

   ⇨ The message **Establishing connec. to converter...** is shown.

5. Wait for some seconds.
   - ⇨ 1 0 0 0 is shown: The connection signal is transmitted.
6. Wait for some seconds.
   - ⇨ 1 1 0 0 is shown: The frequency converter sends the confirmation of the connection signal.
7. Tap the start key.
   - ⇨ 1 1 1 0 is shown: Signal "activate safety relay" is transmitted.
8. Wait for 1 second.
   - ⇨ 1 1 1 1 is shown.
   - ⇨ The result of the function test is OK.
   - ⇨ The function test of the frequency converter is done.

Doing the Function Test of the Frequency Converter Connection U11-U12

1. To select the field **Test connection**, tap the forward key.
2. To start the function test, tap the plus key.
   - ⇨ The message **Establishing connec. to converter...** is shown.
3. Wait for some seconds.
   - ⇨ 1 0 0 0 is shown: The connection signal is transmitted.
4. Wait for some seconds.
   - ⇨ 1 1 0 0 is shown: The frequency converter sends the confirmation of the connection signal.
5. Tap the start key.
   - ⇨ 1 1 1 0 is shown: The activation signal for the safety relay is transmitted.
6. Wait for 1 second.
   - ⇨ If 0 1 1 1 is shown for the frequency converter U11, 0 1 1 1 is shown for the frequency converter U12, and 1 1 1 1 is shown for the frequency converter U11-U12, the function test is correct.
   - ⇨ If 0 1 1 0 is shown for the frequency converter U11-U12, the relay K26 operates incorrectly.
   - ⇨ If 0 1 1 0 is shown for the frequency converter U11-U12, the wiring is incorrect. The last digit 0 shows that the switch S2 on the frequency converter U12 is not set. To examine the wiring connection of the frequency converters U11 and U12, refer to the electrical documentation.
   - ⇨ The function test of the frequency converter connection U11-U12 is done.

Doing the Function Test of the Key Switch for the Card Flat Grinding

1. Turn the key switch 1 to the position **II**.

   ⇨ The status message 254 **Safety relay (maintenance) K23** is shown.

2. Turn the key switch to the position **I**.

   ⇨ The message **Ready to start** is shown.

   ⇨ The result of the function test is OK.

   ⇨ The function test of the key switch for card flat grinding is done.

Doing the Function Test of the Door Lock at the Card Chute

1. Open the door 6.

   ⇨ The status message 452 **Chute door open** is shown.

2. Close the door 6.

   ⇨ The message **Ready to start** is shown.

   ⇨ The result of the function test is OK.

   ⇨ The function test of the door lock at the card chute is done.

Doing the Function Test of the Door Lock at the Drive Side

1. Open the door 7.

   ⇨ The status message 252 **Door safeguard, driving side, card S18** is shown.

2. Close the door 7.

   ⇨ The message **Ready to start** is shown.

   ⇨ The result of the function test is OK.

   ⇨ The function test of the door lock at the drive side is done.

Doing the Function Test of the Hood Lock at the Sliver Coiling Device

1. Open the hood 5.

   ⇨ The status message 253 **Coiler, hood open S15** is shown.

2. Close the hood 5.

   ⇨ The message **Ready to start** is shown.

   ⇨ The result of the function test is OK.

3. If the result is not OK, adjust the safety device of the hood. See *Adjusting the Safety Device of the Hood (CBA-5)* ▶ *165*

   ⇨ The function test of the hood lock at the sliver coiling device is done.

Result The function test of the safety relay is done.

5.2.6 Setting the Sensors

This section contains the information about commissioning work of sensors.

5.2.6.1 Adjusting the Vacuum Monitoring

Orientation This section contains the information about how to adjust the pressure sensor B12.

The pressure sensor B12 1 is in the electric cabinet door.

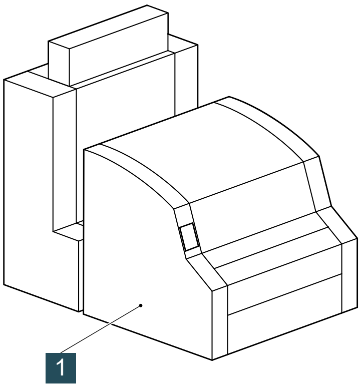


Figure 172: Carding machine

Executing Zero Point Calibration

1. Make sure, the link plug 4 is engaged as specified in the electrical documentation.

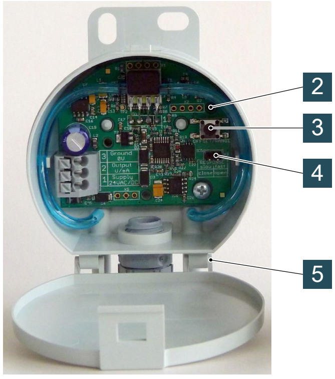


Figure 173: Sensor B12

2. Pull off the pressure hose at 5 (P-).
3. Press the key 3 until the LED 2 light comes on.
4. Make sure that this process can continue up to 5 seconds.
   ⇨ The LED 2 light come on.
5. Reconnect the pressure hose at 5 (P-).
   ⇨ The sensor is calibrated.

Setting the Switch Point

1. Enter the password for level 2. See *Entering the Password ▶ 70*
2. Select data screen 41.2 **Settings feed/cylinder**.
3. Set the switch point in the line **Shut-off thres. f. suc.pres.** to - 600 Pa.

   ⇨ The switch point is set.

Result The vacuum monitoring is adjusted.

5.2.6.2 Adjusting the Proximity Switch of the Opening Roller

Orientation This section contains the information about how to set the proximity switch of the openting roller and how to examine the adjustment.

Adjusting the Proximity Switch

1. Set the distance 2 between the proximity switch 3 and the pulse generator 1 to 2 mm.

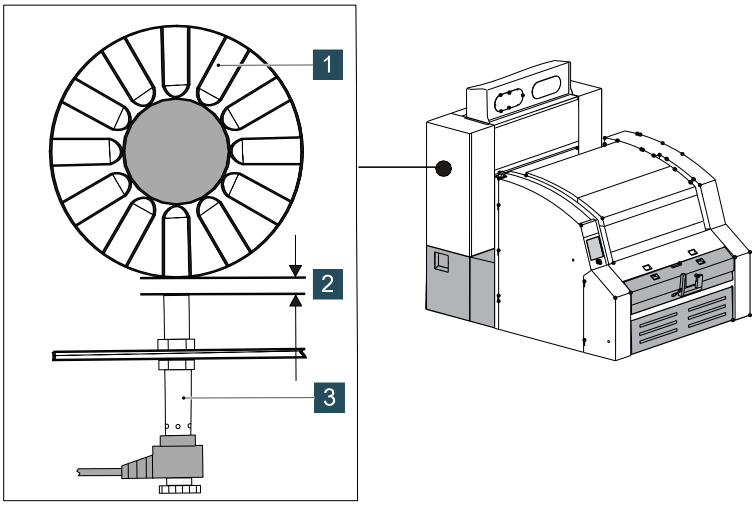
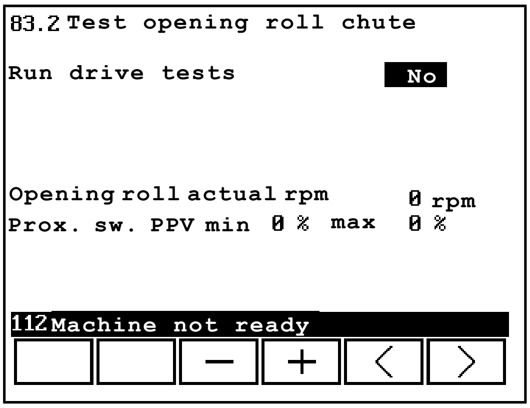


Figure 174: Proximity switch of the opening roller

Examining the Adjustment of the Proximity Switch

1. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.

   ⇨ The test functions in the menus 82 – 85 are possible to be selected.
2. Start the opening roller.
3. Select the data screen 83.2 **Test opening roll chute**.



83.2 Test opening roll chute

Run drive tests No

Opening roll actual rpm 0 rpm
Prox. sw. PPV min 0 % max 0 %

112 Machine not ready

Figure 175: Data screen 83.2

4. Read the value in the field **Prox. sw. PPV min**.
5. Compare the maximum value with the minimum value.
   ⇨ If the difference between the maximum value and the minimum value is less than 10, the values are set correctly.
6. If the difference between the maximum value and the minimum value is more than 10, replace the pulse generator 1.
7. If the minimum value is low, decrease the distance 2.
8. If the maximum value is high, increase the distance 2.

Result The proximity switch of the opening roller is adjusted.

5.2.6.3 Adjusting the Pressure Monitoring Sensor

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Connect the pressure tube 4 to the connection that is identified with P1 + of the pressure monitoring sensor 2.

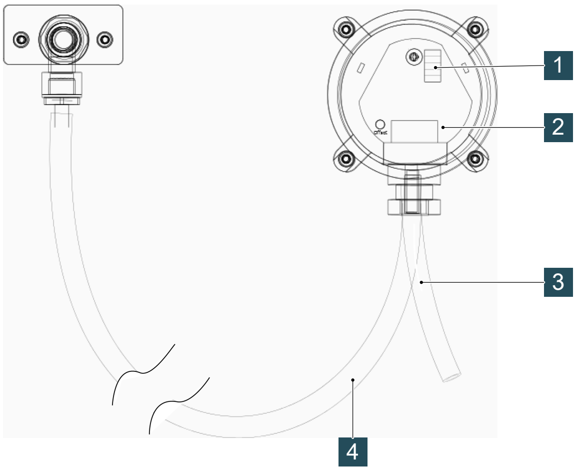


Figure 176: Pressure monitoring sensor

2. Connect the pressure tube 3 to the front connection of the pressure monitoring sensor 2.
3. Connect the plug connectors 1 as given in the electrical documentation.
4. To adjust the thickness 6 of the seal 9 to 6 mm, use the screws 7.

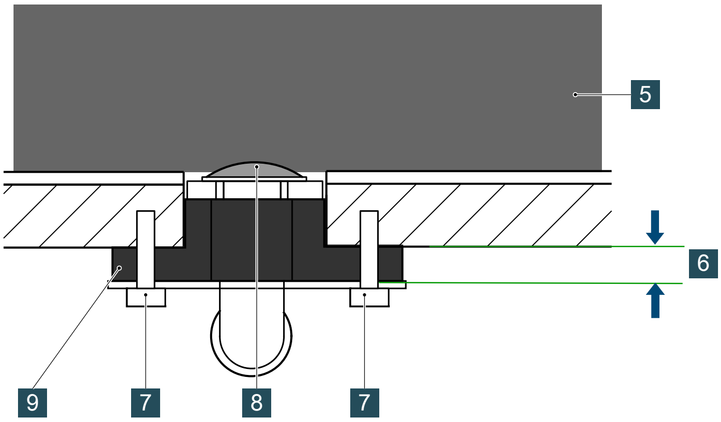


Figure 177: Position of the intake filter

⇨ The intake filter 8 is set correctly in the material flow.

5. Make sure that the batt 5 rubs against the intake filter 8 and causes the self-cleaning effect.

Result The pressure monitoring sensor is adjusted.

5.2.6.4 Adjusting the Proximity Switch for the Licker-in Speed

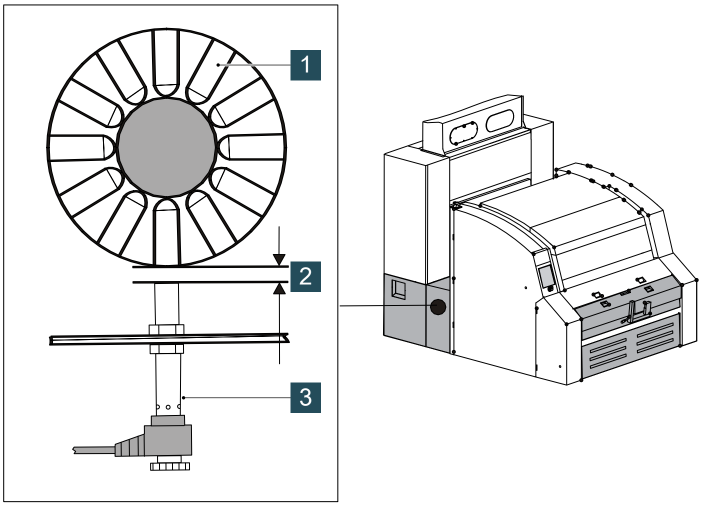


Figure 178: Proximity switch for the licker-in speed

1. Set the distance 2 between the proximity switch 3 and the pulse generator 1 to 2 mm.
2. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.

⇨ The test functions in the menus 82 – 85 are to be selected.

3. Select the data screen 83.4 **Test licker-in**.
4. Start the licker-in.
5. Read the value in the field **Prox. sw. PPV min**.

   ⇨ The value range is from 50 to 70.
6. Compare the maximum value with the minimum value.

   ⇨ If the difference between the maximum value and the minimum value is less than 5, the values are set correctly.
7. If the difference between the maximum value and the minimum value is more than 5, replace the pulse generator 1.
8. If the minimum value is low, decrease the distance 2.
9. If the maximum value is high, increase the distance 2.

Result The proximity switch for the licker-in speed is adjusted.

5.2.6.5 Adjusting the Proximity Switch for the Cylinder

Target range of **Prox. sw. PPV min**	55 – 65

1. Set the distance 2 between the proximity switch 1 and the pulse generator 3 to 2 mm.

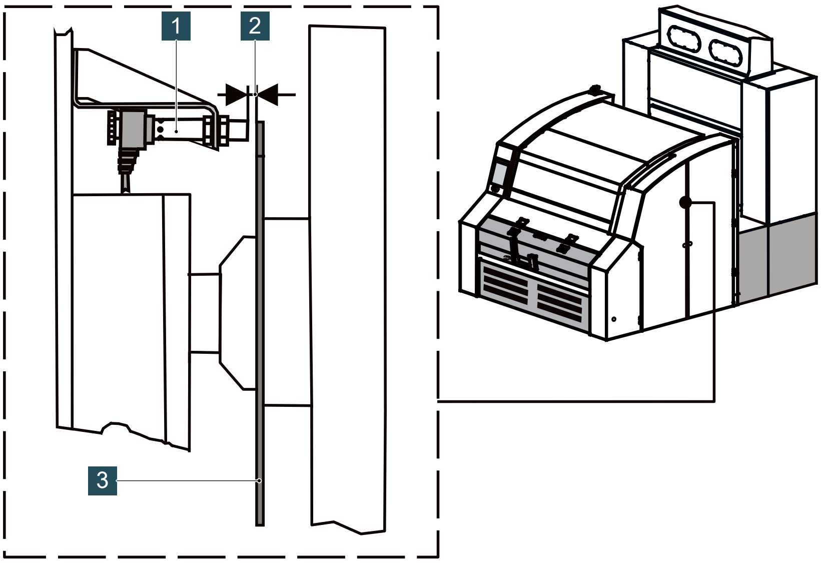
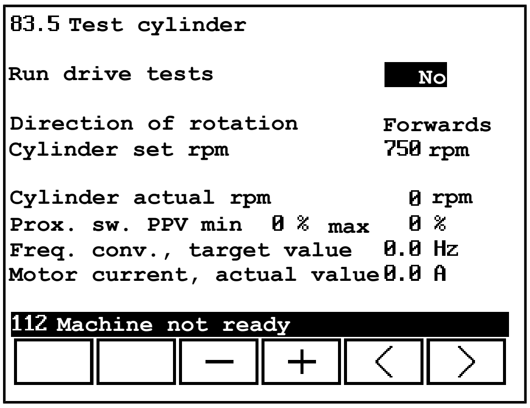


Figure 179: Proximity switch for the cylinder

2. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.
3. Select the data screen 83.5 **Test cylinder**.



```
83.5 Test cylinder

Run drive tests                     No

Direction of rotation           Forwards
Cylinder set rpm                750 rpm

Cylinder actual rpm               0 rpm
Prox. sw. PPV min   0 % max       0 %
Freq. conv., target value       0.0 Hz
Motor current, actual value0.0 A

112 Machine not ready
```

Figure 180: Data screen 83.5 ***Test cylinder***

4. Start the cylinder.
5. Read the value in the field **Prox. sw. PPV min**.
6. Compare the difference between the maximum value and the minimum value.
   - ⇨ If the difference is less than 5, the values are adjusted correctly.
   - ⇨ If the difference is more than 5, replace the pulse generator.
7. If the minimum value is low, decrease the distance 2.
8. If the maximum value is high, increase the distance 2.

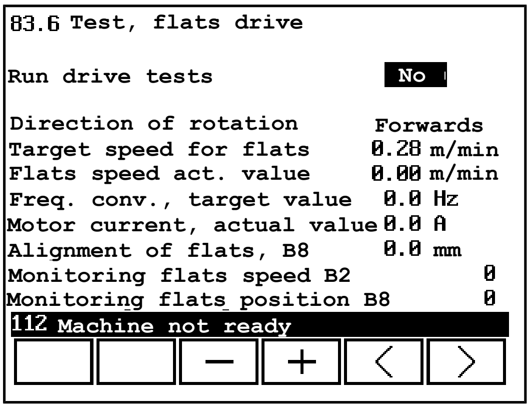
Result The proximity switch for the cylinder is adjusted.

5.2.6.6 Adjusting the Proximity Switches for the Card Flats

Orientation If both proximity switches detect the card flats that run askew, the machine is switched off.

Activating the Card Flats Drive

1. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.
   - ⇨ The test functions in the menus 82 – 85 are possible to be done.
2. Select the data screen 83.6 **Test, flats drive**.



```
83.6 Test, flats drive

Run drive tests                          No

Direction of rotation             Forwards
Target speed for flats           0.28 m/min
Flats speed act. value           0.00 m/min
Freq. conv., target value         0.0 Hz
Motor current, actual value       0.0 A
Alignment of flats, B8            0.0 mm
Monitoring flats speed B2                0
Monitoring flats position B8             0
112 Machine not ready
```

Figure 181: Data screen 83.6

3. To start the test, select the option **Yes** in the field **Run drive tests**.
4. Set the minimum speed 0.1 – 0.6 m/min in the field **Target speed for flats**.

Starting and Stopping the Drive

1. Tap the start key.
   ⇨ The card flat drive is started.
2. Tap the stop key.
   ⇨ The card flat drive is stopped.

Adjusting the Proximity Switches for the Holder

1. Loosen the nut 3.

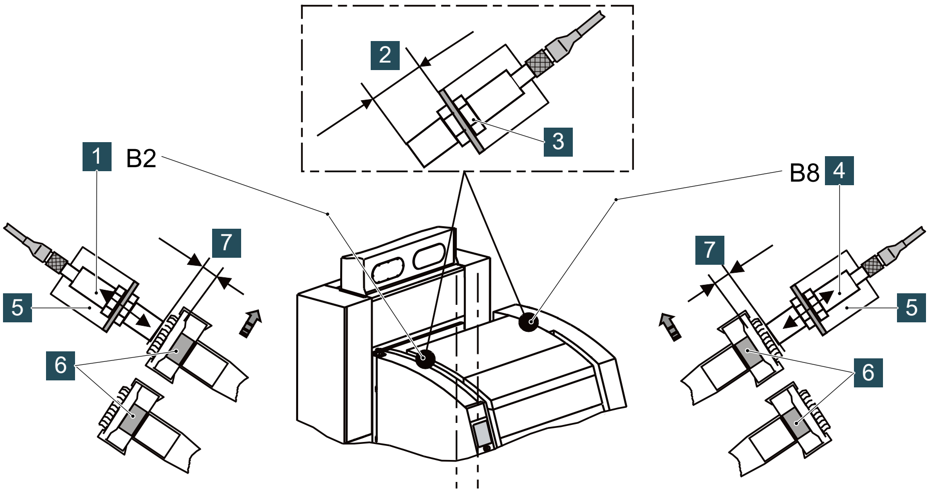


Figure 182: Proximity switches for the card flats

2. Set the distance 2 to 10 mm.
3. Tighten the nut 3 with a tightening torque of 40 Nm.

Adjusting the Switch Distance

1. Move the card flats until the openings 4 are accurately below the proximity switches 1 and 4.
2. To set the switching distance 7 of the proximity switches 1 and 4 to 5 mm, use the holders 5.

Doing a Check of the Distance

1. Start the card flat drive.
2. Read the status in the field **Monitoring flats speed B2** and **Monitoring flats position B8** in the data screen 83.6 **Test, flats drive**.

   ⇨ For each card flat that goes through the proximity switch, the status changes from 0 to 1. This behavior shows that the switching distance 7 is correct.
3. If the status is 0, decrease the distance 7.
4. If the status is 1, increase the distance 7.

   ⇨ The distance is examined.

Examining the Parallel Run

1. Start the card flat drive.
2. Make sure that the card flats move parallel.
3. Read the value in the field **Alignment of flats, B8**in the data screen 83.6 **Test, flats drive**.
4. If the value is more than 1 mm, move the proximity switch 4 near to the delivery unit.
5. If the value is less than -1 mm, move the proximity switch 4 near to the card chute.

   ⇨ The parallel run is examined.

Examining the Setting for the IGS-top

A thin metal plate is installed on the card flat clip on the right side of the machine with this machine model (registration of the first card flat).

1. Make sure that the LEDs stay on when the LEDs go near the metal plate.

   ⇨ The setting for the IGS-top is examined.

Result The proximity switches for the card flats are adjusted.

5.2.6.7 Adjusting the Proximity Switch for the Doffer Speed

Orientation The machine stops if the doffer speed decreases below a specified level. The operator must obey the text on the display.

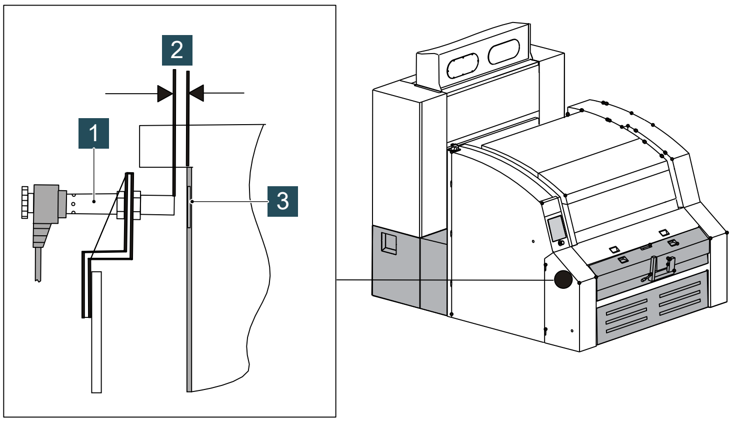


Figure 183: Proximity switch for the doffer speed

1. Open the door.
2. Set the distance 2 between the proximity switch 1 and the pulse generator 3 to 2 mm.
3. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.
4. Select the data screen 83.10 **Test doffer card**
5. Start the doffer.
6. Read the value in the field **Prox. sw. PPV min**.
7. Compare the maximum value with the minimum value.
   ⇨ If the difference between the maximum value and the minimum value is less than 5, the values are set correctly.
8. If the difference between the maximum value and the minimum value is more than 5, replace the pulse generator 3.
9. If the minimum value is low, decrease the distance 2.
10. If the maximum value is high, increase the distance 2.
11. Close the door.

Result The proximity switch for the doffer speed is adjusted.

5.2.6.8 Setting the Proximity Switch for the Delivery Speed

1. Open the door.
2. Set the distance 1 between the proximity switch 2 and the pulse generator 3 to 0.8 mm.

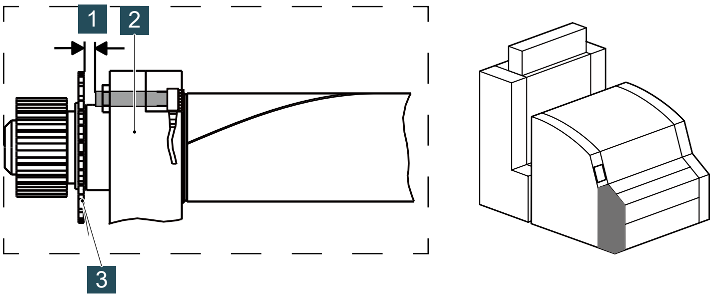
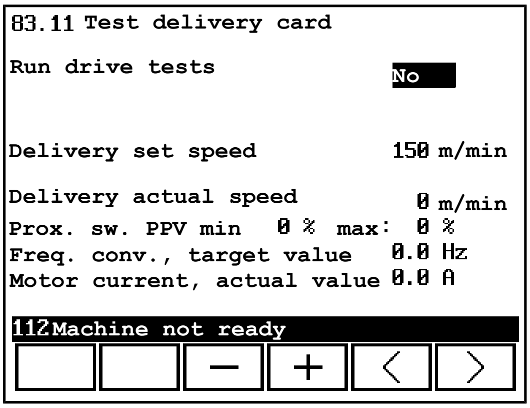


Figure 184: Distance between the proximity switch and the pulse generator

3. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.
4. Select the data screen 83.11 **Test delivery card**.



```
83.11 Test delivery card

Run drive tests                      No


Delivery set speed                  150 m/min

Delivery actual speed                 0 m/min
Prox. sw. PPV min    0 %  max:   0 %
Freq. conv., target value   0.0 Hz
Motor current, actual value 0.0 A

112 Machine not ready
```

Figure 185: Data screen 83.11

5. Start the doffer.
6. Read the 2 values in the field **Prox. sw. PPV min**.
   ⇨ The value range is from 50 to 70.
7. Compare the maximum value with the minimum value.
   ⇨ If the difference between the maximum value and the minimum value is less than 10, the values are set correctly.
8. If the difference between the maximum value and the minimum value is more than 10, replace the pulse generator 3.
9. If the minimum value is too low, decrease the distance 1.
10. If the maximum value is too high, increase the distance 1.
11. Close the door.

Result The proximity switch for the delivery speed is set.

5.2.7 Setting the Drives

This section contains the information about commissioning work of drives.

5.2.8 Setting the Coiler

This section contains the information about commission work of coiler.

5.2.8.1 Putting the Coiler into Operation

1. Select the operating mode **Automatic mode** in the data screen 80.1 **Operating mode switchover**.
2. Close all doors.
3. Set the main switch to the position ON.
   ⇨ The display shows **Ready to start**
4. If error code 321 **Slide carrier to end position B9** is shown, set the magnetic switch B9. See *Adjusting the Magnetic Switch for the Change Carriage Drive (CBA-5)* ▸ *325*
5. If error code 320 **Slide clamping sheet to end pos. S12** is shown, move the clamping plate and the sliver cutter to initial position.
6. Perform a can change and observe the can change procedure.
   ⇨ If the can change procedure is not properly completed, a fault is displayed.
7. Put a can on the changer after checking.
8. Start the can change with the can change key.
   ⇨ The data in the controller are thus reset to the initial point.
   ⇨ No malfunction when starting production.

Result The coiler is put into operation.

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6 Operation

This chapter contains the information about the operation of the machine. This chapter contains the information about how to change the technology components.

6.1 General Information

This section contains the general information about the manual.

Operating Personnel

Only approved personnel are permitted to operate the machine.

Purpose

This chapter contains the information about how to:

- Use the operating elements.
- Monitor the machine during the production.
- Prevent faults through the maintenance that is done by the operator.
- Correct faults in the material flow.
- Operate all data screens.
- Set the different machine components.

Safety Instructions

Before the operation, make sure that:

- The machine is prepared for the operation.
- The machine is adapted to the material.
- All doors and all covers are closed.
- The emergency stop button is unlocked.
- The main switch is set to the position ON.
- The message **Ready to start** is shown on the screen.

6.2 Gearing Layouts

This section contains the information about the gearing layouts of different machine function units.

6.2.1 Gearing Layout of the Card Chute

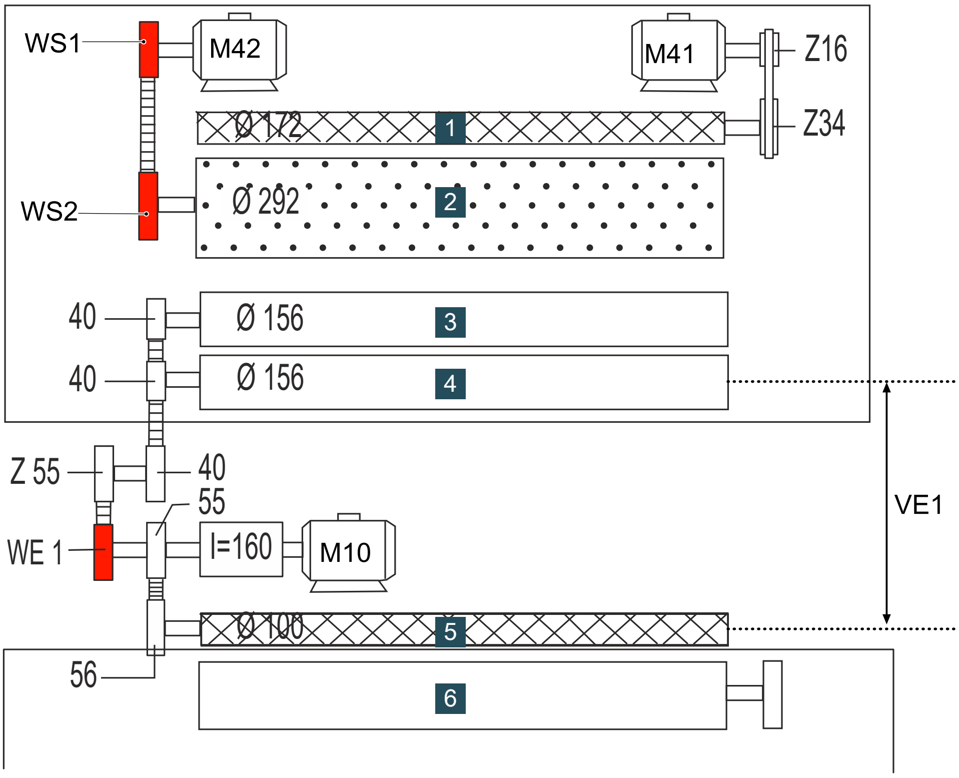

WS1
M42
M41
Z16
Ø 172
1
Z34
WS2
Ø 292
2
40
Ø 156
3
40
Ø 156
4
Z 55
40
55
VE1
WE 1
l=160
M10
Ø 100
5
56
6

Figure 186: Gearing layout of the card chute

1	Feed roller	2	Opening roller
3	Attached delivery roller	4	Spring-loaded delivery roller
5	Feed roller	6	Gearing layout for the licker-in and the cylinder

Revolutions of the Opening Roller for Each Minute					
Opening Roller Speed (rpm)	Number of Teeth (WS1)	Number of Teeth (WS2)		Belt Length (mm)	
		Current Frequency 50 Hz	Current Frequency 60 Hz	Current Frequency 50 Hz	Current Frequency 60 Hz
850	29	52	62	1 392	1 424
1 150	40	52	62	1 424	1 440

Draft VE1 Between the Card Chute and the Feed Roller		
Draft (VE1)	Number of Teeth (WE1)	Number of Teeth (Z)
1.57	22	55
1.50	23	55
1.44 (Guide value)	24	55
1.38	25	55

Draft VE1 Between the Card Chute and the Feed Roller		
Draft (VE1)	**Number of Teeth (WE1)**	**Number of Teeth (Z)**
1.33	26	55
1.28	27	55
1.24	28	55

6.2.2 Gearing Layout of the Licker-In and the Cylinder

Licker-in 1

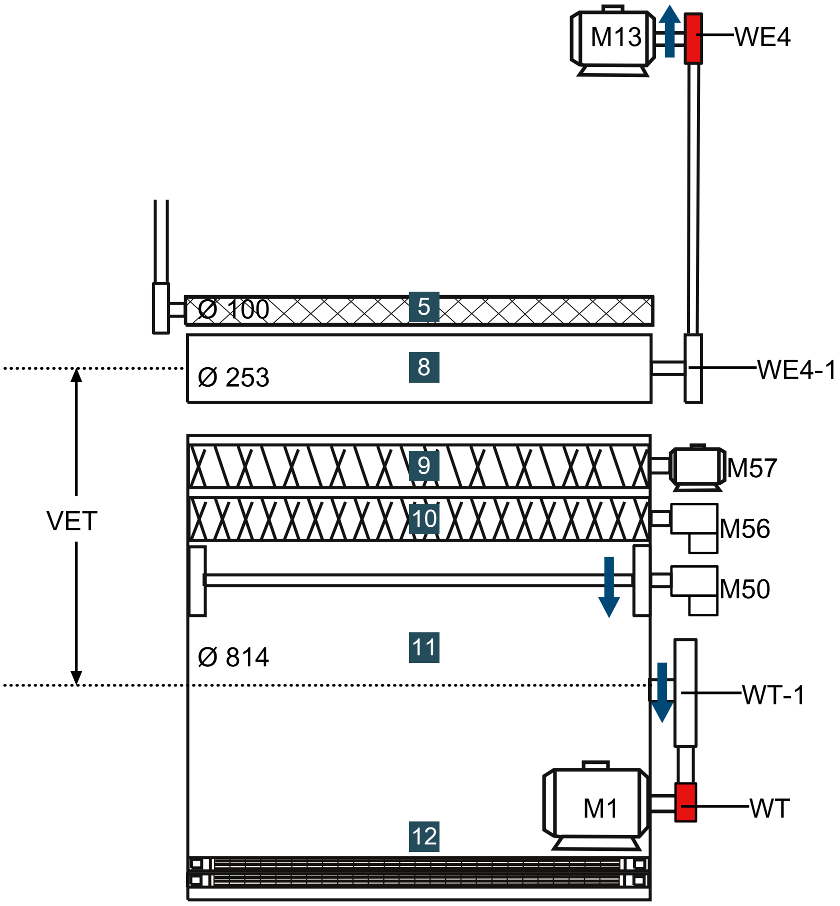

M13
WE4
Ø 100
5
Ø 253
8
WE4-1
9
M57
10
M56
M50
VET
Ø 814
11
WT-1
M1
WT
12

Figure 187: Gearing layout of the licker-in 1 and the cylinder

5	Feed roller	8	Licker-in
9	Clearer roller	10	Stripping roller
11	Cylinder	12	Card flats

Draft VET Between the Licker-in and the Cylinder							
Licker-in Speed (rpm)	Cylinder Speed (rpm)						
	600	650	700	750	800	850	900
1 038	1.86	2.01	2.17	2.32	2.48	2.63	2.79
1 153	1.86	1.82	1.96	2.09	2.23	2.37	2.51
1 384	1.39	1.51	1.63	1.74	1.86	1.98	2.09
1 615	1.2 ☐	1.29	1.39	1.49	1.59	1.69	1.79
1 845	1.05 ☐	1.13 ☐	1.22	1.31	1.40	1.48	1.57
2 076	0.93 ☐	1.01 ☐	1.08 ☐	1.16 ☐	1.24	1.32	1.39
☐: Not recommended							

Cylinder Speed WT					
Cylinder Speed (rpm)	Ø Pulley – Motor (WT) (mm)	Ø Pulley – Cylinder (WT-1) (mm)		Belt Length (WT-1) (mm)	
		Current Frequency 50 Hz	Current Frequency 60 Hz	Current Frequency 50 Hz	Current Frequency 60 Hz
600	85	417	500	2 956	3 127
650	92.5	417	500	2 956	3 127
700	100	417	500	2 956	3 127
750	107	417	500	3 010	3 178
800	114	417	500	3 010	3 178
850	121	417	500	3 010	3 178
900	128	417	500	3 010	3 178

Licker-in Speed WE4-1					
Licker-in Speed (rpm)	Ø Pulley – Motor (WE4) (mm)	Ø Pulley – Licker-in (WE4-1) (mm)		Belt Length (WE4-1) (mm)	
		Current Frequency 50 Hz	Current Frequency 60 Hz	Current Frequency 50 Hz	Current Frequency 60 Hz
1 038	90	124	150	1 550	1 590
1 153	100	124	150	1 550	1 590
1 384	120	124	150	1 590	1 640
1 615	140	124	150	1 640	1 695
1 845	160	124	150	1 695	1 695
2 076	180	124	150	1 710	1 760

Licker-in 3

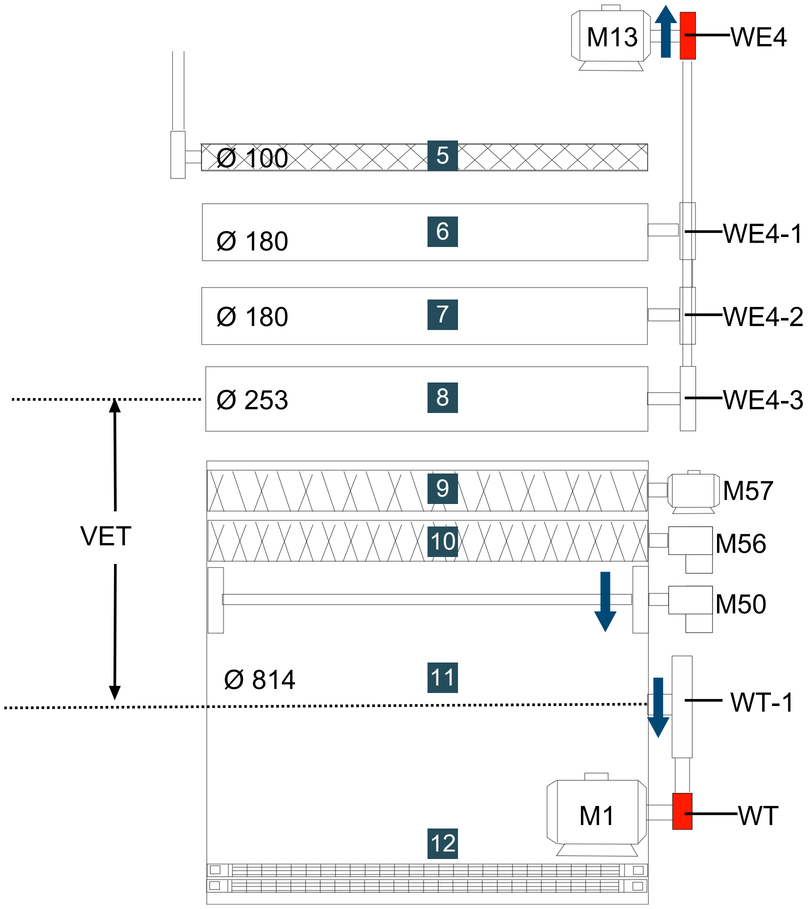

M13
WE4
Ø 100
5
Ø 180
6
WE4-1
Ø 180
7
WE4-2
Ø 253
8
WE4-3
VET
9
M57
10
M56
M50
Ø 814
11
WT-1
M1
WT
12

Figure 188: Gearing layout licker-in 3 and cylinder

5	Feed roller	6	Licker-in-1
7	Licker-in 2	8	Licker-in 3
9	Clearer roller	10	Stripping roller
11	Cylinder	12	Card flats

Draft VET Between the Licker-in and the Cylinder							
Licker-in Speed (rpm)	**Cylinder Speed (rpm)**						
	600	**650**	**700**	**750**	**800**	**850**	**900**
1 154	1.67	1.81	1.95	2.09	2.23	2.37	2.51
1 384	1.39	1.51	1.63	1.74	1.86	1.98	2.09
1 614	1.20□	1.30	1.40	1.50	1.59	1.69	1.79
1 845	1.05 □	1.13 □	1.22	1.31	1.40	1.48	1.57
2 075	0.93 □	1.01 □	1.09 □	1.16 □	1.24	1.32	1.40
2 306	0.84 □	0.91 □	0.98 □	1.05 □	1.12 □	1.19 □	1.26

Draft VET Between the Licker-in and the Cylinder

Licker-in Speed (rpm)	Cylinder Speed (rpm)						
	600	650	700	750	800	850	900

□: Not recommended

Cylinder Speed WT

Cylinder Speed (rpm)	Ø Pulley – Motor (WT) (mm)	Ø Pulley – Cylinder (WT-1) (mm)		Belt Length (WT-1) (mm)	
		Current Frequency 50 Hz	Current Frequency 60 Hz	Current Frequency 50 Hz	Current Frequency 60 Hz
600	85	417	500	2 956	3 127
650	92.5	417	500	2 956	3 127
700	100	417	500	2 956	3 127
750	107	417	500	3 010	3 178
800	114	417	500	3 010	3 178
850	121	417	500	3 010	3 178
900	128	417	500	3 010	3 178

Licker-in Speed WE4-3

Licker-in Speed (rpm)	Ø Pulley – Motor (WE4) (mm)	Ø Pulley – Licker-in (WE4-1) (mm)		Belt Length (WE4-1) (mm)	
		Current Frequency 50 Hz	Current Frequency 60 Hz	Current Frequency 50 Hz	Current Frequency 60 Hz
1 154	100	124	150	2 155	2 245
1 384	120	124	150	2 155	2 245
1 614	140	124	150	2 230	2 320
1 845	160	124	150	2 230	2 320
2 075	180	124	150	2 290	2 380
2 306	200	124	150	2 290	2 380

6.2.3 Gearing Layout of the Doffer

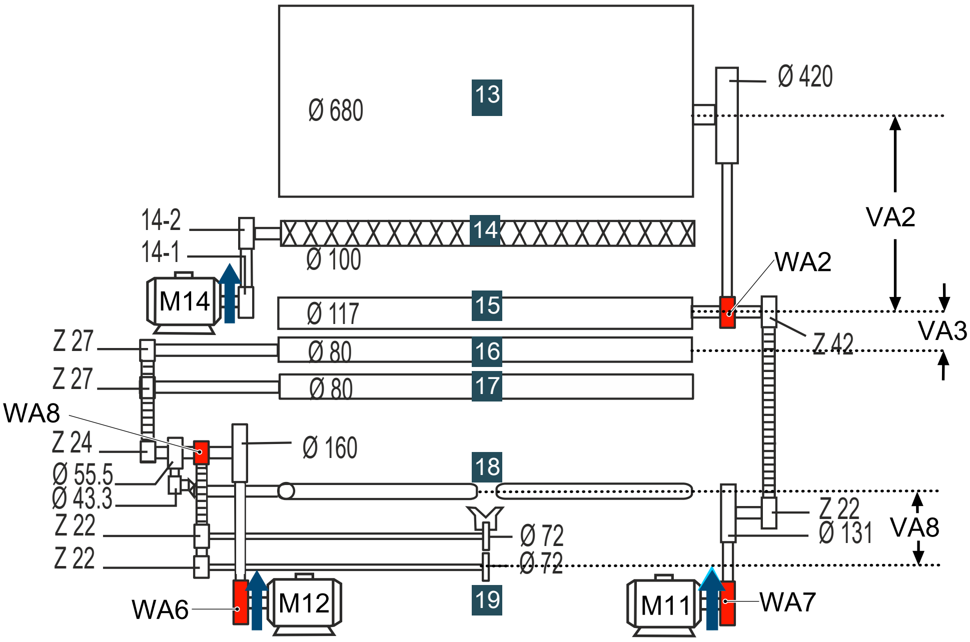

Ø 680
13
Ø 420
VA2
14-2
14-1
14
Ø 100
WA2
M14
15
Ø 117
Z 42
VA3
Z 27
16
Ø 80
Z 27
17
Ø 80
WA8
Z 24
Ø 160
Ø 55.5
Ø 43.3
18
Z 22
Ø 131
VA8
Z 22
Ø 72
Z 22
Ø 72
WA6
M12
19
M11
WA7

Figure 189: Gearing layout

13	Doffer	14	Clearer roller
15	Take-off roller	16	Delivery roller
17	Delivery roller	18	Cross apron
19	Disk rollers		

Draft VA2 between the Doffer and the Take-off Roller	
Draft VA2	**Ø Pulley WA2 (mm)**
1.08	66.9
1.12	64.5

Draft VA3 between the Take-off Roller and the Delivery Roller			
Draft VA3 (Set in the Data Screen 41.1)	**min**	**eff**	**max**
	1.15 – 1.4 Draft at the slow speed	Draft at the set speed	1.4 – 2.4 Draft at maximum speed

Draft VA8 between the Cross Apron and the Disk Roller	
Draft VA8	**Number of Teeth (WA8)**
1.05	24
1.10	25

Ø Pulley (14-1)	
Current frequency 50 Hz	80 mm
Current frequency 60 Hz	70 mm

Ø Pulley (14-2)	
Current frequency 50 Hz	80 mm
Current frequency 60 Hz	90 mm

Ø Pulley (WA6)	
Cylinder drive, capacity M OR cylinder drive, capacity H	62.5 mm
Cylinder drive, capacity L	50.4 mm

Ø Pulley (WA7)	
Cylinder drive, capacity M OR cylinder drive, capacity H	51 mm
Cylinder drive, capacity L	41 mm

6.2.4 Gearing Layout of the Sliver Coiling Device CBA

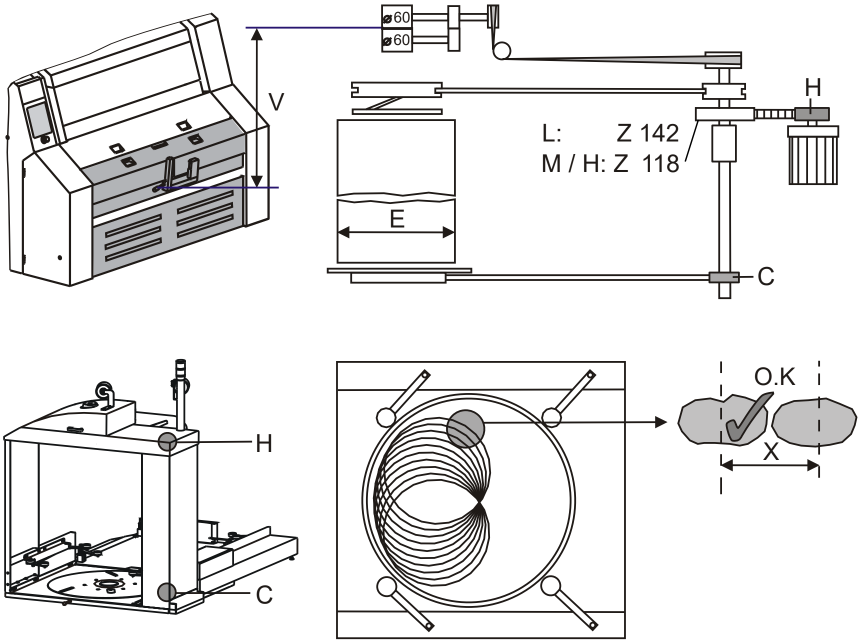


Figure 190: Gearing layout of the coiler device CBA

V	Tension between the card and the coiler	H	Pulley
E	Can diameter	C	Can drive pulley
X	Winding distance		

Tension V between the Card and the Coiler			
Tension V	Pulley (H)		
	Cylinder Drive, Capacity L	Cylinder Drive, Capacity M	Cylinder Drive Capacity H
1.00	29	---	---
1.04	30	31	31
1.07 (Factory setting)	31	32	32
1.10	32	33	33
1.13	33	34	34
1.16	---	35	35

Winding Distance X					
Distance X (mm)	Material	Ø Can Drive Pulley (C) (mm)			
		600 mm Can Diameter in the Delivery Unit	750 mm Can Diameter in the Delivery Unit	800 mm Can Diameter in the Delivery Unit	1000 mm Can Diameter in the Delivery Unit
22	Cotton	117	--	--	--
24	Cotton	--	117	117	91
32	Artificial fibers and blends	167	--	--	--
36	Artificial fibers and blends	--	167	--	--
40	Artificial fibers and blends	--	--	167	175

6.3 Machine Setting Sheets

This section contains the information about the machine setting sheets for different materials.

6.3.1 Setting Sheets for Cotton

This section contains the information about the setting sheets for the cotton.

Cotton Maximum 120 KG Production

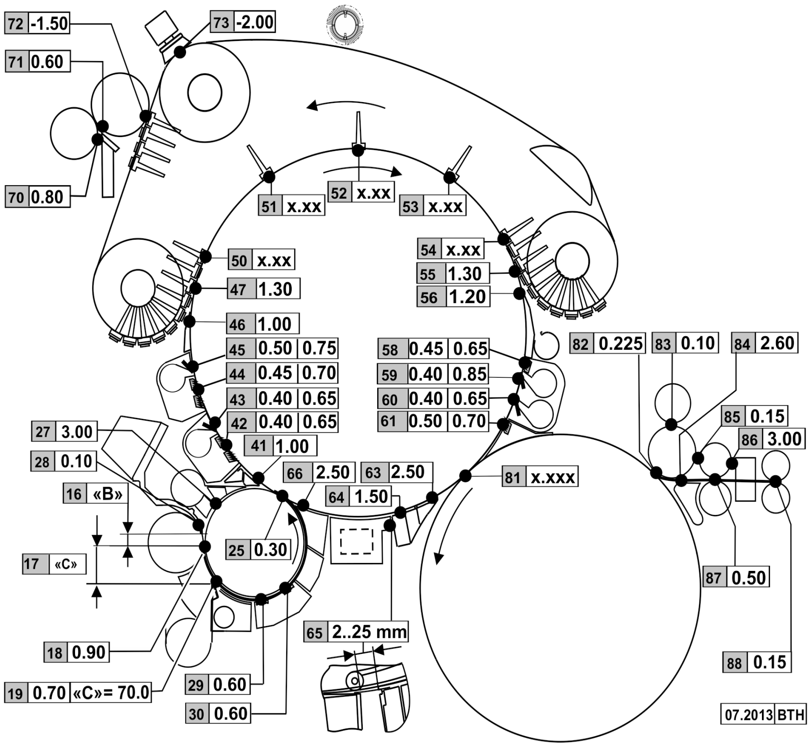

72 -1.50
73 -2.00
71 0.60
70 0.80
51 x.xx
52 x.xx
53 x.xx
50 x.xx
47 1.30
46 1.00
45 0.50 0.75
44 0.45 0.70
43 0.40 0.65
42 0.40 0.65
41 1.00
54 x.xx
55 1.30
56 1.20
58 0.45 0.65
59 0.40 0.85
60 0.40 0.65
61 0.50 0.70
82 0.225
83 0.10
84 2.60
85 0.15
86 3.00
27 3.00
28 0.10
16 «B»
17 «C»
66 2.50
63 2.50
64 1.50
81 x.xxx
25 0.30
65 2..25 mm
18 0.90
19 0.70 «C»= 70.0
29 0.60
30 0.60
87 0.50
88 0.15
07.2013 BTH

Figure 191: Cotton maximum 120 kg production (cylinder drive capacity L or M)

16 B	Nipping distance between the feed trough and the licker-in	17 C	Discharge opening at the licker-in
43, 45, 59, 60	Discharge opening at the pre-carding zone and post-carding zone.	50...54	Measuring points for card flats
81	Distance between the cylinder and the doffer (machine warm)		

Nipping Distance between the Feed Trough and the Licker-in (16 B)	
Cotton (CO) and extra-long staple 35.50 – 45.50 mm	24.0 – 27.0 mm
Cotton (CO) and long staple 30.00 – 35.40 mm	22.0 – 25.0 mm
Cotton (CO) and medium staple 26.00 – 29.90 mm	19.0 – 23.0 mm
Cotton (CO) and short staple 22.80 – 25.90 mm	17.0 – 20.0 mm

Discharge Opening at the Licker-in (17 C)	
Minimum distance: Minimum extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm

Discharge Opening at the Licker-in (17 C)	
Maximum distance: Maximum extraction	≤ 70.0 mm

Discharge Opening at the Pre-Carding Zone and Post-Carding Zone (43, 45, 59, 60)	
Largest extraction	Strip no. 0
More extraction	Strip no. 2
Standard setting	Strip no. 5
Lower extraction	Strip no. 8

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 70	0.15 mm
Production per hour: 70 – 105	0.175 mm
Production per hour: 105 – 150	0.2 mm
Production per hour: 150 – 190	0.225 mm
Production per hour: > 190	0.250 mm

Cotton More Than 120 KG Production

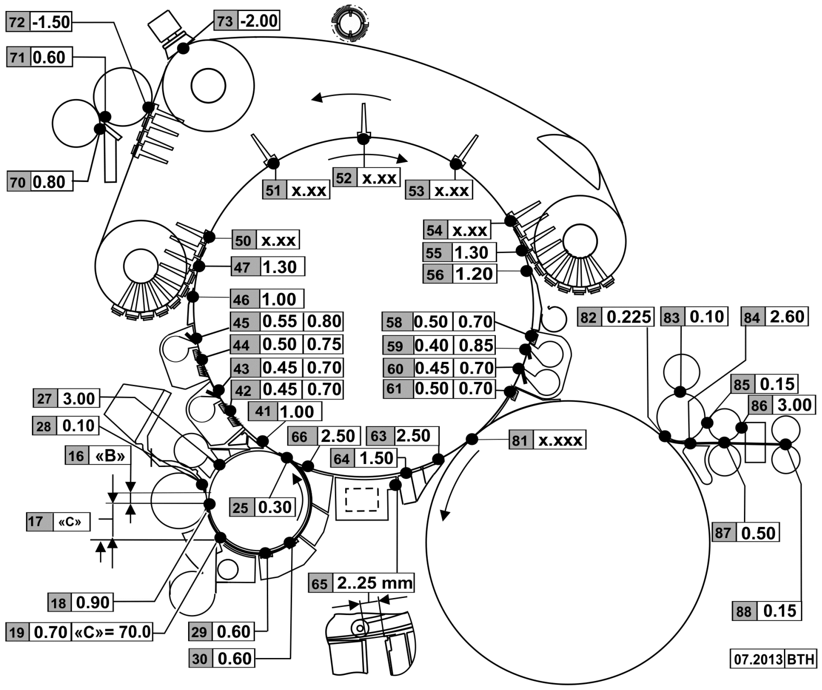

72 -1.50
73 -2.00
71 0.60
70 0.80
51 x.xx
52 x.xx
53 x.xx
50 x.xx
47 1.30
54 x.xx
55 1.30
56 1.20
46 1.00
45 0.55 0.80
44 0.50 0.75
43 0.45 0.70
42 0.45 0.70
41 1.00
58 0.50 0.70
59 0.40 0.85
60 0.45 0.70
61 0.50 0.70
82 0.225
83 0.10
84 2.60
85 0.15
86 3.00
27 3.00
28 0.10
16 «B»
17 «C»
66 2.50
63 2.50
64 1.50
81 x.xxx
25 0.30
87 0.50
65 2..25 mm
18 0.90
19 0.70 «C»= 70.0
29 0.60
30 0.60
88 0.15
07.2013 BTH

Figure 192: Cotton more than 120 kg (cylinder drive capacity H)

16 B	Nipping distance between the feed trough and the licker-in	17 C	Discharge opening at the licker-in
43, 45, 59, 60	Discharge opening at the pre-carding zone and post-carding zone.	50...54	Measuring points of the card flats
81	Distance between the cylinder and the doffer (machine warm)		

Nipping Distance between the Feed Trough and the Licker-in (16 B)	
Cotton (CO) and extra-long staple 35.50 – 45.50 mm	24.0 – 27.0 mm
Cotton (CO) And long staple 30.00 – 35.40 mm	22.0 – 25.0 mm
Cotton (CO) And medium staple 26.00 – 29.90 mm	19.0 – 23.0 mm
Cotton (CO) And short staple 22.80 – 25.90 mm	17.0 – 20.0 mm

Discharge Opening at the Licker-in (17 C)	
Minimum distance: Minimum extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm
Maximum distance: Maximum extraction	≤ 70.0 mm

Discharge Opening at the Pre-Carding Zone and Post-Carding Zone (43, 45, 59, 60)	
Largest extraction	Strip no. 0
More extraction	Strip no. 2
Standard setting	Strip no. 5
Lower extraction	Strip no. 8

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 70	0.15 mm
Production per hour: 70 – 105	0.175 mm
Production per hour: 105 – 150	0.2 mm
Production per hour: 150 – 190	0.225 mm
Production per hour: > 190	0.250 mm

6.3.2 Setting Sheets for Blends

This section contains the information about how to set the sheets for the blends.

Blends Maximum 120 KG Production

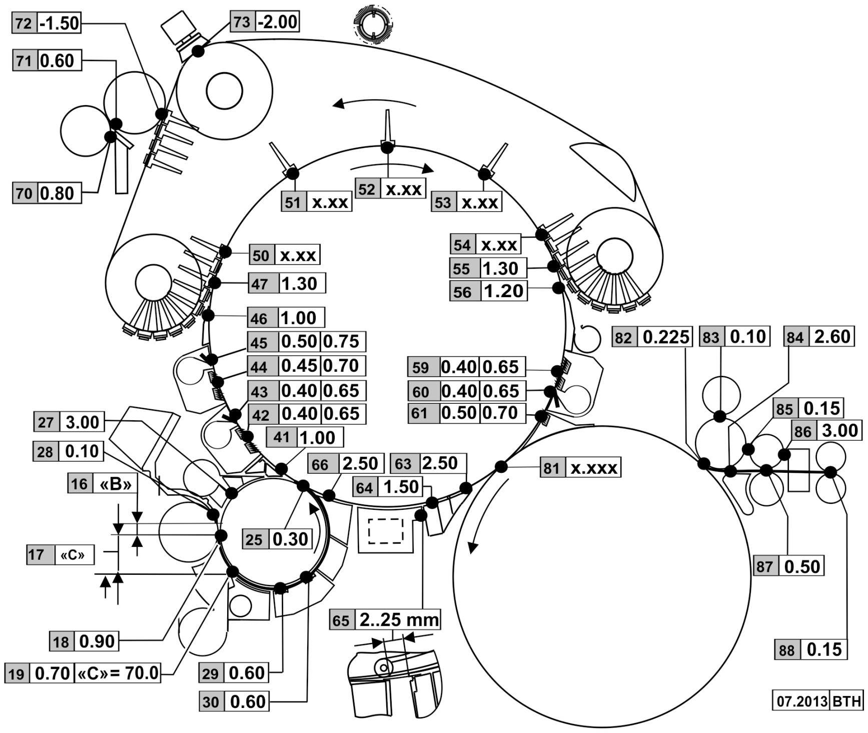

72 -1.50
73 -2.00
71 0.60
70 0.80
51 x.xx
52 x.xx
53 x.xx
54 x.xx
55 1.30
56 1.20
50 x.xx
47 1.30
46 1.00
45 0.50 0.75
44 0.45 0.70
43 0.40 0.65
42 0.40 0.65
41 1.00
59 0.40 0.65
60 0.40 0.65
61 0.50 0.70
82 0.225
83 0.10
84 2.60
85 0.15
86 3.00
27 3.00
28 0.10
16 «B»
66 2.50
63 2.50
64 1.50
81 x.xxx
25 0.30
17 «C»
65 2..25 mm
87 0.50
18 0.90
19 0.70 «C»= 70.0
29 0.60
30 0.60
88 0.15
07.2013 BTH

Figure 193: Blends maximum 120 kg production (cylinder drive capacity L or M)

16 B	Nipping distance between the feed trough and the licker-in	17 C	Discharge opening at the licker-in
43, 45, 59, 60	Discharge opening at the pre-carding zone and post-carding zone	50...54	Measuring points for card flats
81	Distance between the cylinder and the doffer (machine warm)		

Nipping Distance between the Feed Trough and the Licker-in (16 B)	
CO / MMF AND staple length - 65.00 mm	17.0 – 27.0 mm

Discharge Opening at the Licker-in (17 C)	
Minimum distance: Minimum extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm
Maximum distance: Maximum extraction	≤ 70.0 mm

Discharge Opening at the Pre-Carding Zone and Post-Carding Zone (43, 45, 59, 60)	
Largest extraction	Strip no. 0
More extraction	Strip no. 2
Standard setting	Strip no. 5
Lower extraction	Strip no. 8

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 70	0.15 mm
Production per hour: 70 – 105	0.175 mm
Production per hour: 105 – 150	0.2 mm
Production per hour: 150 – 190	0.225 mm
Production per hour: > 190	0.250 mm

Blends More Than 120 KG Production

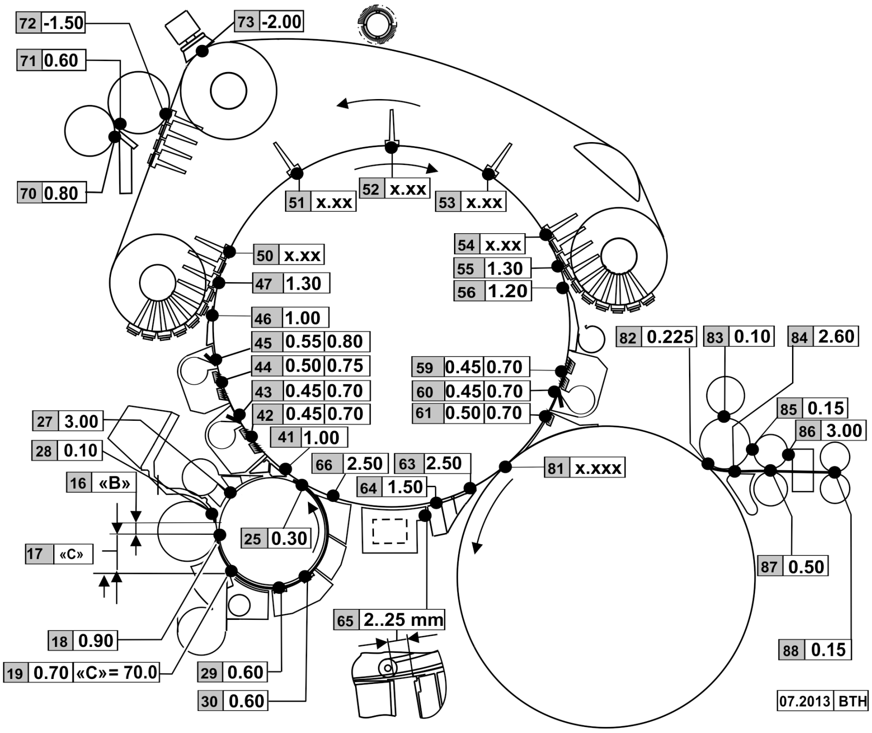

72 -1.50
73 -2.00
71 0.60
70 0.80
51 x.xx
52 x.xx
53 x.xx
50 x.xx
47 1.30
46 1.00
45 0.55 0.80
44 0.50 0.75
43 0.45 0.70
42 0.45 0.70
41 1.00
54 x.xx
55 1.30
56 1.20
59 0.45 0.70
60 0.45 0.70
61 0.50 0.70
82 0.225
83 0.10
84 2.60
85 0.15
86 3.00
27 3.00
28 0.10
16 «B»
17 «C»
66 2.50
63 2.50
64 1.50
81 x.xxx
25 0.30
87 0.50
65 2..25 mm
18 0.90
19 0.70 «C»= 70.0
29 0.60
30 0.60
88 0.15
07.2013 BTH

Figure 194: Blends more than 120 kg production (cylinder drive capacity H)

16 B	Nipping clearance between the feed trough and the licker-in	17 C	Discharge opening at the licker-in

43, 45, 59, 60	Discharge opening at the pre-carding zone / post-carding zone	50...54	Measuring points of the card flats
81	Distance – cylinder doffer (machine warm)		

Nipping Distance between the Feed Trough and the Licker-in (16 B)	
CO / MMF AND staple length - 65.00 mm	17.0 – 27.0 mm

Discharge Opening at the Licker-in (17 C)	
Minimum distance: Minimum extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm
Maximum distance: Maximum extraction	≤ 70.0 mm

Discharge Opening at the Pre-Carding Zone and Post-Carding Zone (43, 45, 59, 60)	
Largest extraction	Strip no. 0
More extraction	Strip no. 2
Standard setting	Strip no. 5
Lower extraction	Strip no. 8

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 70	0.15 mm
Production per hour: 70 – 105	0.175 mm
Production per hour: 105 – 150	0.2 mm
Production per hour: 150 – 190	0.225 mm
Production per hour: > 190	0.250 mm

6.3.3 Setting Sheets for Man-Made Fibers

This contains information about the setting sheets for man-made fibers maximum 120 KG production and man-made fibers more than 120 KG production.

Man-Made Fibers Maximum 120 KG Production

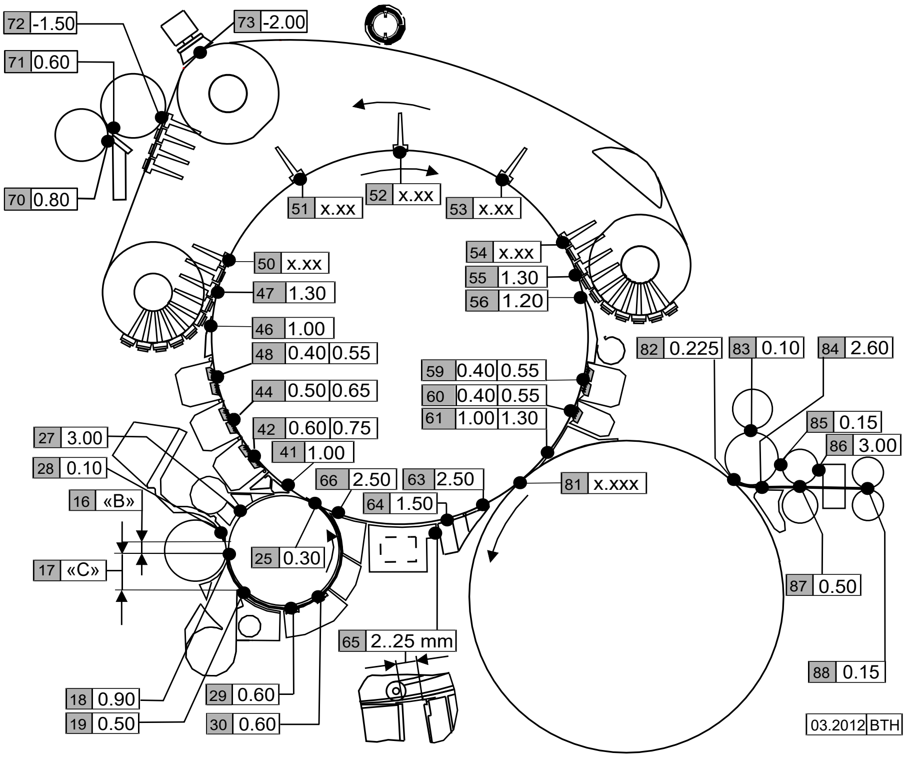

72 -1.50
73 -2.00
71 0.60
70 0.80
51 x.xx
52 x.xx
53 x.xx
54 x.xx
55 1.30
56 1.20
50 x.xx
47 1.30
46 1.00
48 0.40 0.55
44 0.50 0.65
42 0.60 0.75
41 1.00
59 0.40 0.55
60 0.40 0.55
61 1.00 1.30
82 0.225
83 0.10
84 2.60
85 0.15
86 3.00
27 3.00
28 0.10
16 «B»
17 «C»
66 2.50
63 2.50
64 1.50
81 x.xxx
25 0.30
87 0.50
65 2..25 mm
88 0.15
18 0.90
19 0.50
29 0.60
30 0.60
03.2012 BTH

Figure 195: Man-made fibers maximum 120 kg production (cylinder drive capacity L or M)

16 B	Nipping distance between the feed trough and the licker-in	17 C	Discharge opening at the licker-in
50...54	Measuring points for card flats	81	Distance between the cylinder and the doffer (machine warm)

Nipping Distance between the Feed Trough and the Licker-in (16 B)	
Man-made fibers (MMF) and staple length 35.00 – 65.00 mm	≤ 27.0 mm

Discharge Opening at the Licker-in (17 C)	
Minimum distance: Minimum extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm
Maximum distance: Maximum extraction	≤ 70.0 mm

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 70	0.15 mm
Production per hour: 70 – 105	0.175 mm
Production per hour: 105 – 150	0.2 mm
Production per hour: 150 – 190	0.225 mm

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 190	0.250 mm

Man-Made Fibers More Than 120 KG Production

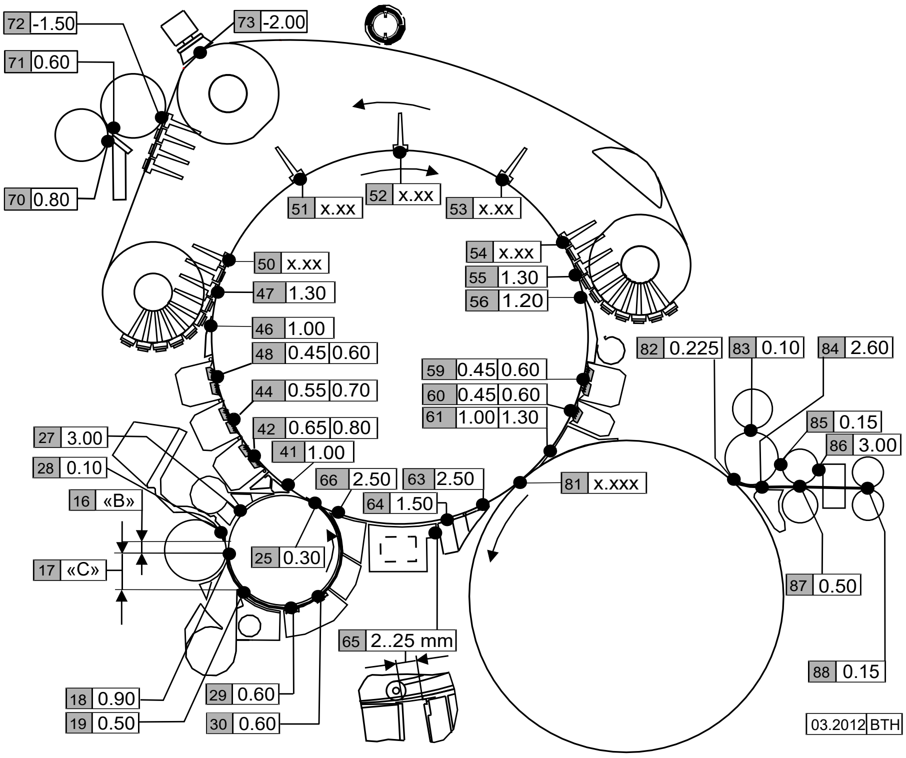

72 -1.50
73 -2.00
71 0.60
70 0.80
51 x.xx
52 x.xx
53 x.xx
50 x.xx
47 1.30
46 1.00
48 0.45 0.60
44 0.55 0.70
42 0.65 0.80
41 1.00
54 x.xx
55 1.30
56 1.20
59 0.45 0.60
60 0.45 0.60
61 1.00 1.30
82 0.225
83 0.10
84 2.60
85 0.15
86 3.00
27 3.00
28 0.10
16 «B»
17 «C»
66 2.50
63 2.50
64 1.50
81 x.xxx
25 0.30
87 0.50
65 2..25 mm
88 0.15
18 0.90
19 0.50
29 0.60
30 0.60
03.2012 BTH

Figure 196: Man-made fibers more than 120 kg production (cylinder drive capacity H)

16 B	Nipping distance between the feed trough and the licker-in	17 C	Discharge opening at the licker-in
50...54	Measuring points for card flats	81	Distance between the cylinder and the doffer (machine warm)

Nipping Distance between the Feed Trough and the Licker-in (16 B)	
Man-made fibers (MMF) and staple length 35.00 – 65.00 mm	≤ 27.0 mm

Discharge Opening at the Licker-in (17 C)	
Minimum distance: Minimum extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm
Maximum distance: Maximum extraction	≤ 70.0 mm

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: > 70	0.15 mm

Distance between the Cylinder and the Doffer (Machine Warm) (81)	
Production per hour: 70 – 105	0.175 mm
Production per hour: 105 – 150	0.2 mm
Production per hour: 150 – 190	0.225 mm
Production per hour: > 190	0.250 mm

6.3.4 Setting Sheets for Bleached Cotton

This section contains the information about how to set the sheets for the bleached cotton to the maximum 220 KG production.

Setting Sheets of Licker-in

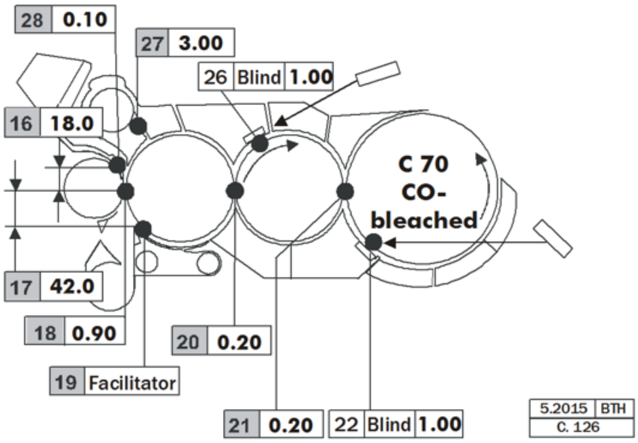

28 0.10
27 3.00
26 Blind 1.00
16 18.0
C 70
CO-
bleached
17 42.0
18 0.90
20 0.20
19 Facilitator
21 0.20
22 Blind 1.00
5.2015 BTH
C. 126

Figure 197: Bleached cotton maximum 220 kg production (cylinder drive capacity H)

Setting Sheets of Cylinder

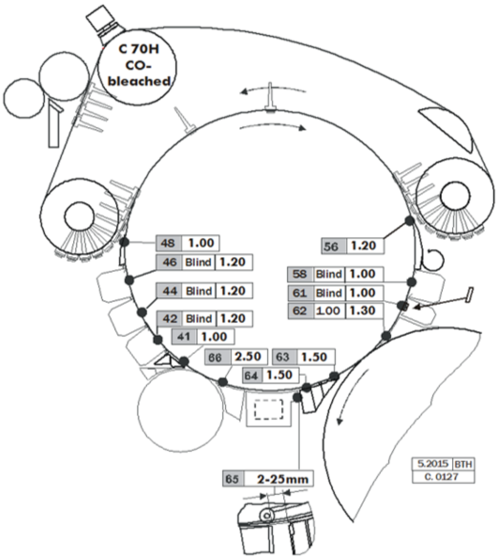

C 70H
CO-
bleached
48 1.00
46 Blind 1.20
44 Blind 1.20
42 Blind 1.20
41 1.00
56 1.20
58 Blind 1.00
61 Blind 1.00
62 1.00 1.30
66 2.50
63 1.50
64 1.50
65 2-25mm
5.2015 BTH
C. 0127

Figure 198: Bleached cotton maximum 120 kg production (cylinder drive capacity H)

Pre-carding zone and post-carding zone are fitted with dummy elements.

6.3.5 Selecting the Setting Values

Materials	Production	Option
Cotton	Maximum 120 kg	Cylinder drive capacity L or M
	More than 120 kg	Cylinder drive capacity H
Blends	Maximum 120 kg	Cylinder drive capacity L or M
	More than 120 kg	Cylinder drive capacity H
Man-made fibers	Maximum 120 kg	Cylinder drive capacity L or M
	More than 120 kg	Cylinder drive capacity H

1. Examine the properties of the material that is to process.
2. Select the production quantity of the feed machine.
3. Select the applicable setting sheet based on the material configuration and the material.
4. Select the carding gap. See *Adjusting the Carding Gap ▸ 261*
5. Set the nipping distance between the feed through and the licker-in. See *Adjusting the Clamping Distance ▸ 231*
6. Obey the instructions for the hollow cylinder housing. See *Adjustment of the Distances ▸ 246*
7. Adjust the cylinder covers, carding profile, mote knives, and tongue. See *Setting the Cylinder ▸ 246*
8. Adjust the doffer. See *Adjusting the Doffer ▸ 276*
9. Adjust the discharge opening of the mote knife. See *Adjusting the Extraction Opening of the Mote Knife ▸ 238*
10. Adjust the card flats. See *Adjusting the Card Flats ▸ 270*

Result The setting values are selected.

6.4 Setting the Machine into Operation

This chapter contains instructions to set the machine referring to the different machine components.

6.4.1 Preparing the Machine

Prerequisites Make sure that the criteria are obeyed:

- ✓ The machine is ready for operation.
- ✓ After maintenance task, commissioning of the machine without material is done.
- ✓ The machine is set into operation with material.

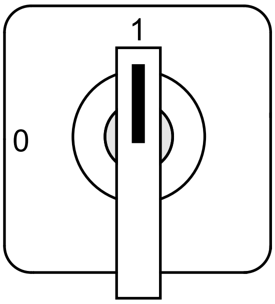


Figure 199: Main switch

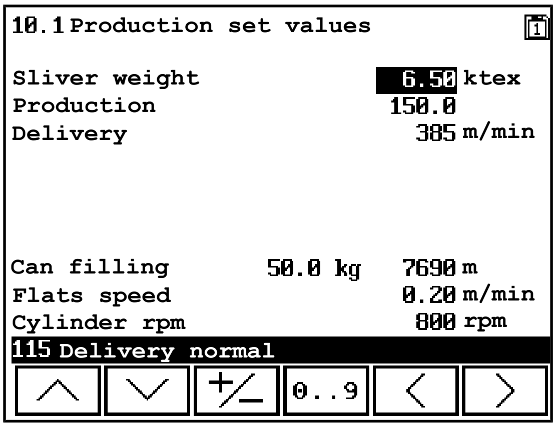
1. Set the main switch to the position ON.
   ⇨ The switch is in the position of the operation.

Result The machine is prepared.

6.4.2 Setting the Production Values

This section contains the information about how to set the production values.

6.4.2.1 Adjusting the Sliver Weight



```
10.1 Production set values

Sliver weight                   6.50 ktex
Production                     150.0
Delivery                         385 m/min



Can filling          50.0 kg    7690 m
Flats speed                     0.20 m/min
Cylinder rpm                     800 rpm
115 Delivery normal
```

Figure 200: Data screen 10.1 Production set values

Possible Sliver Weight	
Disk roller, width: 9 mm	4 – 12 ktex
Disk roller, width: 15 mm	8 – 20 ktex
Step roller, width: 6 mm	≤ 8 ktex
Step roller, width: 9 mm	> 8 ktex

1. Enter the password in the level 2.
2. Select the data screen 10.1 **Production set values**.
3. Enter the value in **Sliver weight**.
4. Measure the sliver weight.

5. Correct the sliver weight, if necessary.

Result The silver weight is adjusted.

6.4.2.2 Entering the Production Quantity

Orientation The production can be entered either by the production quantity or the delivery speed. The production quantity and the delivery speed interact with each other.

Maximum production	
C 75	≤ 225 kg/h

The production quantity is given

1. Select the data screen 10.1 **Production set values**.
2. Enter the quantity in the field **Production**.
   - ⇨ The production is aligned to the correct quantity.
   - ⇨ The delivery speed will be calculated.
   - ⇨ The production quantity is set.

The delivery speed is given

1. Select the data screen 10.1 **Production set values**.
2. Enter the delivery speed between 1 – 200 m/min in the field **Delivery**.
   - ⇨ The production is aligned to the correct speed.
   - ⇨ The production quantity will be calculated.
   - ⇨ The delivery speed is set.

Result The production quantity is entered.

6.4.2.3 Entering the Can Fill Quantity

Orientation The can fill quantity can be entered either by sliver weight or by sliver length. The sliver weight and the sliver length interact with each other.

The sliver weight is given

Can fill quantity	≤ 80 kg

1. Select the data screen 10.1.
2. Enter the sliver weight in **Can filling**.
   - ⇨ The sliver weight is matched to the volume of the can.
   - ⇨ The sliver length will be calculated.
3. Examine the parameter **Empty can warning**. See *Doing the Configuration of the Sliver Coiling Device ▸ 215*

4. Correct the can fill quantity. See *Correcting the Can Fill Quantity* ▸ *321*

The sliver length is given

Can fill quantity	≤ 9 999 m

1. Select the data screen 10.1.
2. Enter the sliver length in **Can filling**.
   - ⇨ The sliver length is matched to the volume of the can.
   - ⇨ The sliver weight will be calculated.
3. Examine the parameter **Empty can warning**. See *Doing the Configuration of the Sliver Coiling Device* ▸ *215*
4. Correct the can fill quantity. See *Correcting the Can Fill Quantity* ▸ *321*

Result The can fill quantity is entered.

6.4.2.4 Adjusting the Cylinder Speed

Orientation This section contains the information about the how to adjust the cylinder speed.

Cylinder Drive with Frequency Converter

Material	Licker-in Speed
Carded cotton (15 - 30 Ne or 25-50 Nm)	790 – 930 rpm
Cotton, rotor, fine number range	775 – 845 rpm
Loose stock blends cotton or man-made fibers	775 – 845 rpm
Combed cotton (Ne~24, Nm~40) or carded cotton, fine number range	670 – 810 rpm
Polyester or Polyester (swing)	600 – 740 rpm
Viscose or Viscose (swing)	600 – 740 rpm

1. Enter the password for level 2.
2. Select the data screen 10.1 **Production set values**.
3. Enter the speed in **Cylinder rpm** .

Result The cylinder speed is adjusted.

6.4.2.5 Adjusting the Licker-In Speed

Material	Licker-in speed
Cotton / rotor yarn	1 615 – 2 076 rpm
Carded ring yarn of cotton	1 384 – 1 845 rpm
Combed ring yarn of cotton	1 038 – 1 615 rpm

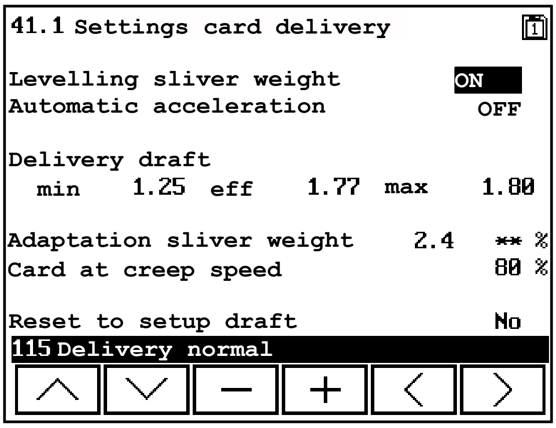
Material	Licker-in speed
Swing / blends	1 153 – 1 615 rpm
Man-made fibers	1 153 – 1 384 rpm

Licker-in Drive with Frequency Converter

1. Enter the password in level 2.
2. Select the data screen 10.3 **Production setpoints options**.
3. To enter the speed in **Licker-in speed**, refer to the table above.

Result The licker-in speed is adjusted.

6.4.2.6 Doing the Configuration of the Delivery Unit



```
41.1 Settings card delivery

Levelling sliver weight              ON
Automatic acceleration              OFF

Delivery draft
  min    1.25  eff    1.77  max    1.80

Adaptation sliver weight    2.4    ** %
Card at creep speed                80 %

Reset to setup draft                 No
115 Delivery normal
```

Figure 201: Data screen 41.1 Settings card delivery

Delivery draft	
Draft: **min**	1.15 - 1.4 (Draft in creep speed)
Draft: **max**	1.4 - 2.4 (Draft at maximum speed)
Draft: **eff**	Draft at set speed

1. Enter the password for the level 2.
2. Select the data screen 41.1 **Settings card delivery**.

Starting the Autoleveler

1. Select **ON** in **Levelling sliver weight**.

Setting the Automatic Ramp-up

1. Select **ON** in **Automatic acceleration**.
   - ⇨ After the production start key is tapped, the doffer changes from low speed to high speed automatically.

Setting the Draft for Take-off Roller or Delivery Roller

1. To set the **Delivery draft**, refer to the table above.

Setting the Delay of the Autoleveler

1. Select **Yes** in **Reset to setup draft** to start the function.

   ⇨ The autoleveling drafting system is set to the specified value.

Result The configuration of the delivery unit is done.

6.4.2.7 Doing the Configuration of the Feed Unit and the Cylinder

For Feed safety device threshold	
Feed protection switch-off point – feed roller.	110 – 250 %
Cotton	120 %
Polyester or blends	130 %

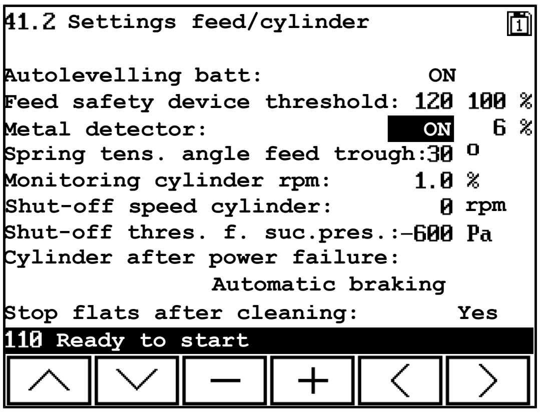
For Metal detector:	
Metal detector:	ON
Guide value	6 %

For Monitoring cylinder rpm	
Tolerance – monitoring cylinder turning speed	0.8 – 10 %
Guide value	1 %

For Cylinder after power failure	
Automatic braking	Cylinder braking is automatic.
Brake/start manually	Cylinder braking or reacceleration is manual.

For Chute monitoring, emptying	
Switch-off delay: **Normal**	Normal switch-off delay
Switch-off delay: **Short**	Short switch-off delay (-10 %)
Switch-off delay: **Long**	Long switch-off delay (+10 %)

1. Enter the password for the level 2.
2. Select the data screen 41.2 **Settings feed/cylinder**.



```
41.2 Settings feed/cylinder

Autolevelling batt:              ON
Feed safety device threshold: 120 100 %
Metal detector:                 ON   6 %
Spring tens. angle feed trough:30 °
Monitoring cylinder rpm:       1.0 %
Shut-off speed cylinder:         0 rpm
Shut-off thres. f. suc.pres.:-600 Pa
Cylinder after power failure:
              Automatic braking
Stop flats after cleaning:        Yes
110 Ready to start
```

Figure 202: Data screen 41.2 Settings feed/cylinder

3. Select **ON** or **OFF** in the field **Autolevelling batt**.
   - ⇨ If **ON** is selected, the short-term feature in the card feed is started. The frequency converter changes the speed of the feed roller motor based on the signals from the feed measuring device.
   - ⇨ If **OFF** is selected, the short-term feature in the card feed is stopped. The speed of the feed roller is constant.
4. To enter the necessary switch-off point in the field **Feed safety device threshold**, refer to the table above.
   - ⇨ If there is an unwanted object in the batt, the feed roller is stopped.
5. Select ON and enter 6 % in the field **Metal detector:**.
6. Enter the angle on the feed trough in the field **Spring tens. angle feed trough:** . See *Entering the Angle of the Feed Trough* ▸ *237*
7. To enter the tolerance in the field **Monitoring cylinder rpm**, refer to the above table.
8. To select the necessary braking in the field **Cylinder after power failure**, refer to the above table.
9. Select the data screen 41.32 **Settings extended 3**.
10. To enter the behavior in the field **Chute monitoring, emptying**, refer to the above table.

Result The configuration of the feed unit and the cylinder is done.

6.4.2.8 Doing the Configuration of the IGS

For Lifetime of clothing in the group IGS-classic (Cylinder)	
Service life of the cylinder clothing	100 – 4 000 t

For End of service life	
Stop grinding	The grinding is stopped after the grinding budget is contracted.

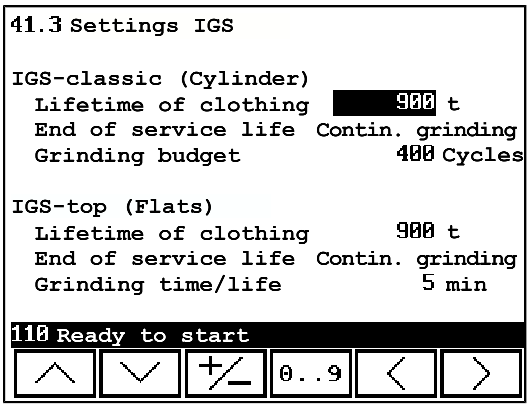
For End of service life	
Contin. grinding	The grinding is continued until 2 cycles of the initial budget are got. But the maximum cycle is 400.

For Grinding budget		
All applications	1 – 700 t	270 cycles
	701 – 1 300 t	400 cycles
Cotton (BW)	1 301 – 4 000 t	400 cycles
MMF (CHF)	1 301 – 2 000 t	600 cycles
	2 001 – 4 000 t	800 cycles

For Lifetime of clothing in the group IGS-top (Flats)	
Service life of the card flats clothing	100 – 4 000 t

For Grinding time/life	
Grinding interval is aligned to service life.	2 – 8 min
Guide value	5 min

1. Enter the password for password level 2.
2. Select the data screen 41.3 **Settings IGS**.



```
41.3 Settings IGS

IGS-classic (Cylinder)
  Lifetime of clothing        900 t
  End of service life  Contin. grinding
  Grinding budget             400 Cycles

IGS-top (Flats)
  Lifetime of clothing        900 t
  End of service life  Contin. grinding
  Grinding time/life            5 min

110 Ready to start
```

Figure 203: Data screen 41.3

3. Set the value of **Lifetime of clothing** in the group **IGS-classic (Cylinder)** .
   ⇨ The assignment of **Grinding budget** is determined by **Lifetime of clothing** and **Cylinder drive** that is selected in the data screen 43.1 **Machine configuration**.
4. To select the status of the IGS system in **End of service life**, refer to the table above.
5. Read the new calculated number of the grinding cycles in **Grinding budget**.

6. Set the value of **Lifetime of clothing** in the group **IGS-top (Flats)** .
7. Set the **End of service life** in the group **IGS-top (Flats)** .
8. In data screen 40.2, select **Extended** in the field **Operation**.
9. Set the **Grinding time/life** in the group **IGS-top (Flats)** .

Result The configuration of the IGS is done.

6.4.2.9 Setting the Sliver Weight during the Drawing-In

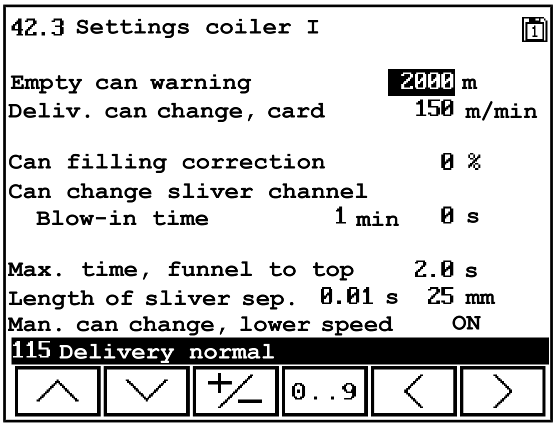
Coiler CBA	Default Sliver Weight
Disk roller, width: 9 mm	4 – 12 ktex
Disk roller, width: 15 mm	8 – 20 ktex
Step roller, width: 6 mm	≤ 8 ktex
Step roller, width: 9 mm	> 8 ktex

1. Select the data screen 41.3 **Settings IGS**.
2. Set the sliver weight in the field **Sliver weight piece-up**.
   - ⇨ The card sliver is easily pulled in with the injector function.

Result The sliver weight during pull-in is set.

6.4.2.10 Doing the Configuration of the Sliver Coiling Device

1. Enter the password for the level 2.
2. Select the data screen 42.3 **Settings coiler I**.



```
42.3 Settings coiler I

Empty can warning              2000 m
Deliv. can change, card         150 m/min

Can filling correction            0 %
Can change sliver channel
  Blow-in time            1 min   0 s

Max. time, funnel to top        2.0 s
Length of sliver sep.  0.01 s   25 mm
Man. can change, lower speed     ON
115 Delivery normal
```

Figure 204: Data screen 42.3 Settings coiler I

Setting Warning–Empty Can

1. Enter the sliver length in the field **Empty can warning**.
   - ⇨ If the set sliver length is reached, the signal light flashes until a reserve empty can is pushed in.

- ⇨ If the set empty can shows the warning message early, 10 % of the can is filled.
- ⇨ If the set empty can shows the warning message late, 80 % of the can is filled.

Setting Delivery Speed for Manual Can Change

1. Enter the delivery speed in the field **Deliv. can change, card**.
   - ⇨ If the delivery speed during the can change is set to maximum, delivery speed is the same as in the production operation.
2. Monitor the can change procedure.
3. If faults occur frequently during the can change, decrease the speed.

Setting Lower Speed Function for Manual Can Change

1. Set function in the field **Man. can change, lower speed**.
2. If before can change, the delivery speed must be lowered the same way as it is for an automatic can change, switch on the function.
3. If the can must be changed at full delivery speed and the possibility of sliver breakage is accepted, switch off the function.

Following Tasks during Commissioning

1. Correct the can fill quantity. See *Correcting the Can Fill Quantity ▸ 321*
2. Adjust the lift sliver funnel-monitor. See *Adjusting the Sliver Funnel ▸ 305*
3. Set the clamping time interval. See *Adjusting the Sliver Funnel ▸ 305*
4. Adjust the air injector of the coiler. See *Adjusting the Air Injector of the Sliver Coiling Device ▸ 307*

Result The sliver coiling device is configured.

6.4.3 Setting the Material Feed with the AEROfeed

This section contains the information about how to set the material feed with the AEROfeed.

6.4.3.1 Adjusting the Air Ratios in a Card Line

Orientation To set the air ratios in a card line correctly, refer to the operating manuals of the Blowroom machines.

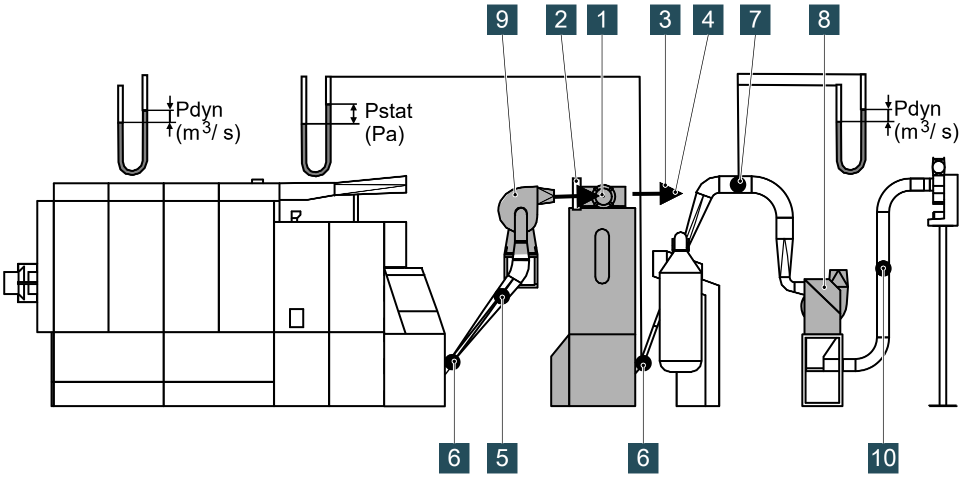


Figure 205: Adjustment of the air ratios

1	Air volume at the entry point
2	Vacuum at the waste extraction point Exhaust air volume at the waste extraction point
3	Air volume at the air exit point from the storage unit
4	Vacuum pressure at the measuring point at air exit from the storage unit
5	Air volume at the material supply point (design with cone)
6	Vacuum pressure on the measuring point (design with duct)
7	Air volume at the measuring point (design with duct)
10	Air volume at the measuring point (maximum production 600 kg): 0.4 – 0.6 m³/s Air volume at the measuring point (maximum production 1200 kg): 0.8 – 1.0 m³/s

1. Adjust the suction unit 8 and the fan 9, to keep specified equal air ratios.

   ⇨ The air ratios adjustments have influence on the full card line.

Result The air ratios in a card line are adjusted.

6.4.3.2 Setting the Production for the Feed Machine

The optimum production speed of the feed machine is set in the program of the corresponding machine. The adaptation is described in the corresponding instructions. If all cards of a feed system are in operation, the feed machine of this system should supply the material to the cards with as few interruptions as possible.

The run time is more than 90 % and standstill time is less than 10 % of operation time.

6.4.3.3 Acceleration Sliders and Separation Sliders

To change the speed of the air in the air feed system, the acceleration sliders 2 are used. If the cross section area of the feed channel is less, the air speed increases. The high-speed air moves the material to the card chutes. Acceleration sliders supply equal quantity of material to all card chutes.

The initial acceleration slider 2 is at the lowest point of the machine. For the other acceleration sliders, the dimension 3 continuously increases. The dimension 3 for the last acceleration slider 2 is in the range of 150 mm to 200 mm. After the last card chute, a cover seals the feed duct.

Single Assortment Feed

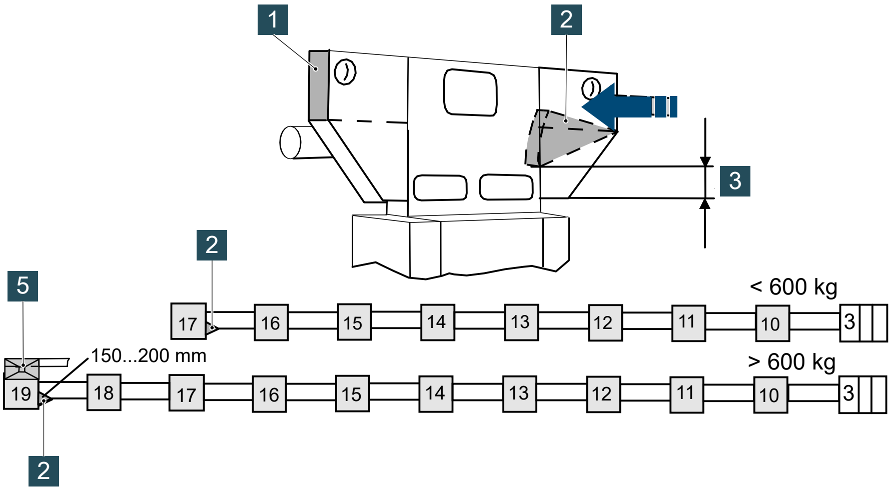


Figure 206: Single assortment feed

For the standard cross section, the maximum production capacity is 600 kg/h.

For the jumbo cross section (production capacity that is more than 600 kg/h), in the card line, one more air separator 5 is installed on the last card.

Two Assortment Feed

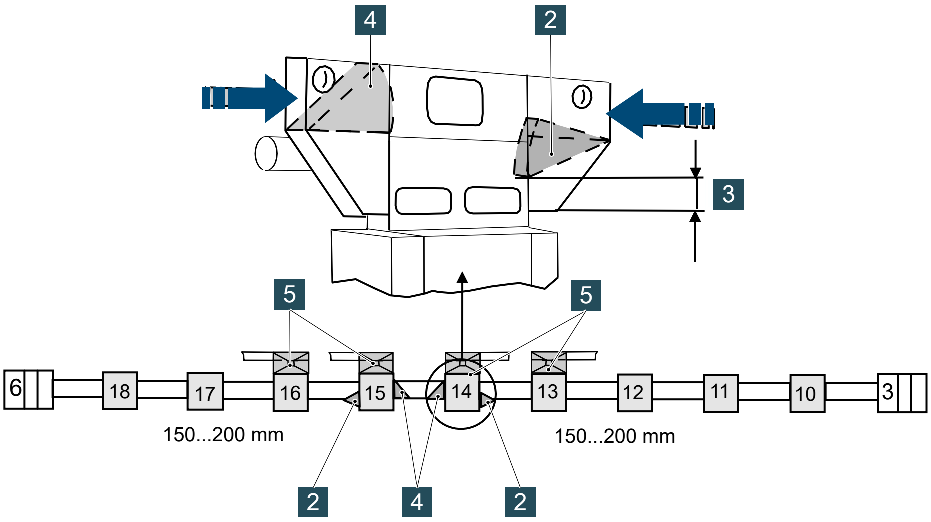

4
2
3
5
5
6
18
17
16
15
14
13
12
11
10
3
150...200 mm
150...200 mm
2
4
2

Figure 207: Card line with 2 feed inlets

When the feed is from 2 sides of the machine, the sliders 4 isolate the material.

The separation sliders 4 give the cards to the related feed system.

The acceleration sliders 2 move the material.

Adjust the air separator. See Setting the Air Separator

6.4.3.4 Setting the Air Separator

Orientation This section contains the information about how to adjust the last air separator.

Air should only be separated at the last air separator 1.

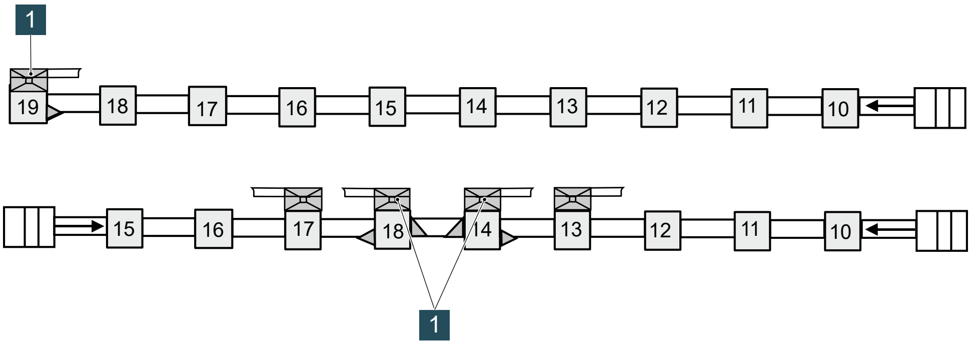

1
19
18
17
16
15
14
13
12
11
10
15
16
17
18
14
13
12
11
10
1

Figure 208: Air separator

1. Switch off the fan of the AEROfeed unit.

Adjusting the Last Air Separator

1. Remove the cover 5.

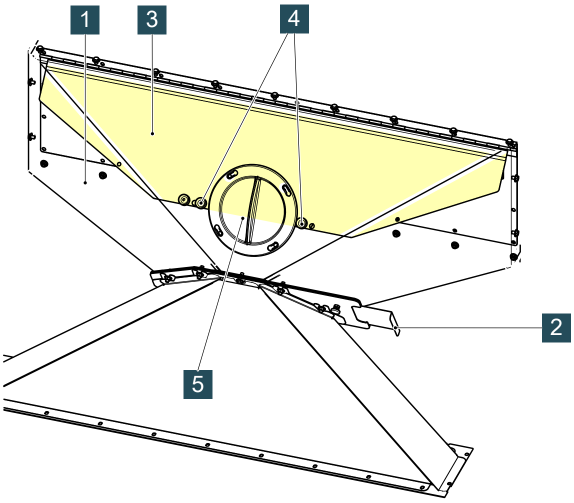


Figure 209: Air separator of the card line

2. Put the slider 2 in the position ‘3’.
3. If the material transport is stopped, lightly increase the opening of the slider 2.
4. Loosen the screws 4.
5. Move up the flap 3.
6. Attach the flap 3 on the external side of the channel.

   ⇨ The flap 3 is opened and installed in position.

Adjusting the Other Air Separators

1. Put the slider 2 in the position ‘0’.

   ⇨ The slider 2 is closed.
2. Close the flap 3.
3. Tighten the screws 4.

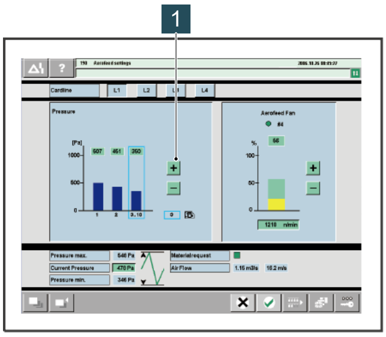
   ⇨ The flap 3 is closed and installed in position.

Result The air separator is adjusted.

6.4.3.5 Adjusting the Fill Height in the Feed Chute

1. Start the feed system UNIcontrol.

   ⇨ The blowroom line is ready for the operation.
2. Switch off the material feed.


1
190 Aerofeed settings
2006.10.26 08:45:27
Cardline
L1
L2
L3
L4
Pressure
[Pa]
1000
500
0
507
451
350
1
2
9..10
0
+
–
Aerofeed Fan
#4
%
66
100
50
0
1210 n/min

Pressure max. 548 Pa
Current Pressure 478 Pa
Pressure min. 346 Pa
Materialrequest
Air Flow 1.15 m3/s 16.2 m/s

Figure 210: Operating unit of UNIcontrol

3. Set the switch point at a higher value with the key 1 in the operating unit of the UNIcontrol.

   ⇨ The material is not supplied to the card chute.

4. Start production at high speed.

Adjusting the Switch Point

1. Decrease the switch point in the operating unit of the UNIcontrol.

   ⇨ The feed starts.

   ⇨ The feed chutes are filled.

   ⇨ The pressure in the feed line increases slowly.

2. Examine the material level in the window 2.
3. Make sure that the chute is filled to the lower edge of the window for the cotton.
4. Make sure the chute is filled to the middle of the window for the man-made fibers.

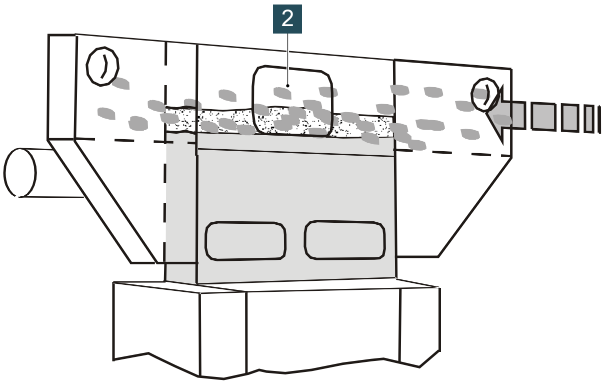


Figure 211: Window to examine the material level

5. If the fill level is too high, increase the switch point.
6. If the fill level is too low, decrease the switch point.
7. Start all the card machines in this system.

8. Adjust the fill level again if necessary.

Result The fill height in the feed chute is adjusted.

6.4.3.6 Adjusting the Vacuum for the Exhaust Air

Orientation The filter device uses exhaust air which is blown from transport fan to the feed system from the transport fan. Variations in the suction power in this filter installation are evened out by the open transfer of the transport air.

Prerequisites Make sure that the criteria are obeyed:

✓ The vacuum quantity 50 – 150 Pa is necessary at point 1.

1. Make sure that at the air inlet 3 the air that contains dust does not blow out.

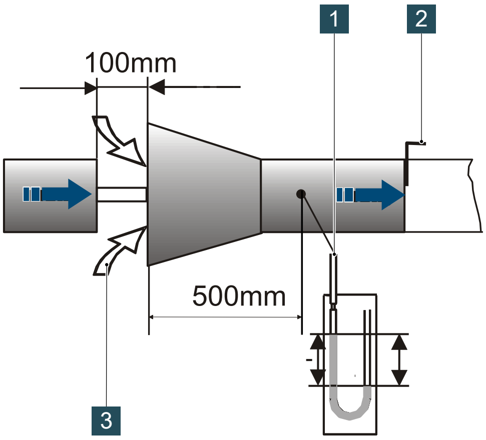


Figure 212: Vacuum for the exhaust air

2. Decrease the suction power through gate position 2, to cause the vacuum at point 1.

Result The vacuum is adjusted for the exhaust air.

6.4.4 Setting the Suction

This section contains the information about how to set the suction.

6.4.4.1 Adjusting the Vacuum for the Suction System

Orientation The instruction below is an example of the setting for the 8 cards in the line.

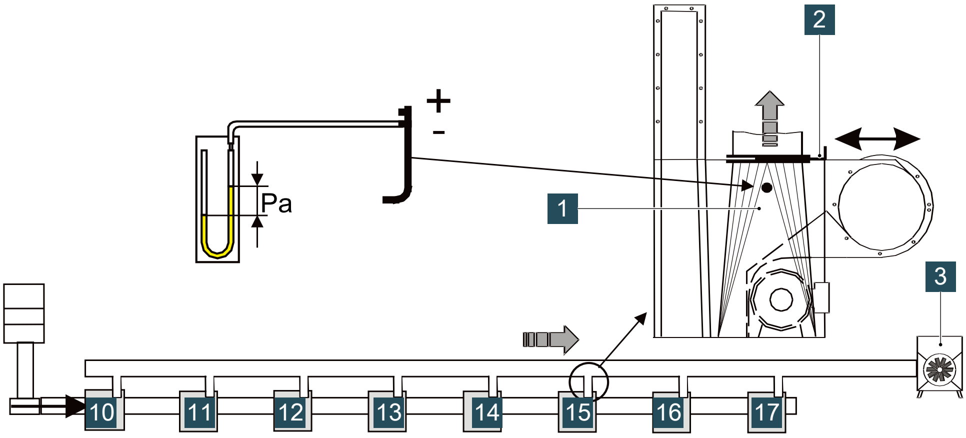


Figure 213: Adjustment of the vacuum pressure for card suction

Vacuum range at the point of the card	1 150 ±150 Pa

Prerequisites Make sure that the criteria are obeyed:

- ✓ A U-tube is to be used.
- ✓ The AEROfeed unit and the filter system are in operation.

1. Measure the vacuum pressure at the point 1 with the U-tube.
2. Make sure that the vacuum is in the given range for the card 3, which is the nearest card to the filter system 17.
3. Set the vacuum for cards 10 to 17 with the slide valve 2.

Result The vacuum for the suction system is adjusted.

6.4.5 Setting the Card Chute

This section contains the information about how to set the card chute.

6.4.5.1 Doing a Check of the Air Ratios

Vacuum Pressure of the Suction Unit	
Under pressure	1 000 – 1 300 Pa

Air Volume of the Suction Unit	
Coiler CBA	1.3 m³/s

1. Examine the air volume of the central card exhaust system.
2. Adjust the vacuum for the waste suction on each card chute.
3. Adjust the vacuum pressure for the card suction. See *Adjusting the Vacuum for the Suction System* ▶ *223*

4. Examine the open movement of the exhaust air of the card chutes.
5. Adjust the vacuum for the exhaust air. See *Adjusting the Vacuum for the Exhaust Air ▶ 222*
6. Examine the air ratios in a card line.
7. If necessary, adjust the air ratios in a card line.

Result The air ratios are checked.

6.4.5.2 Adjusting the Batt Weight through the Position of the Card Chute Wall

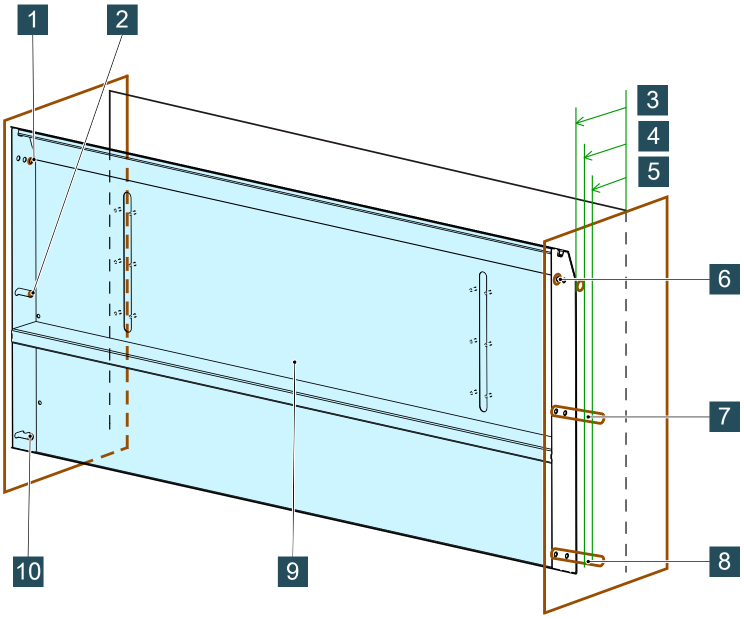


Figure 214: Adjustment of the batt weight

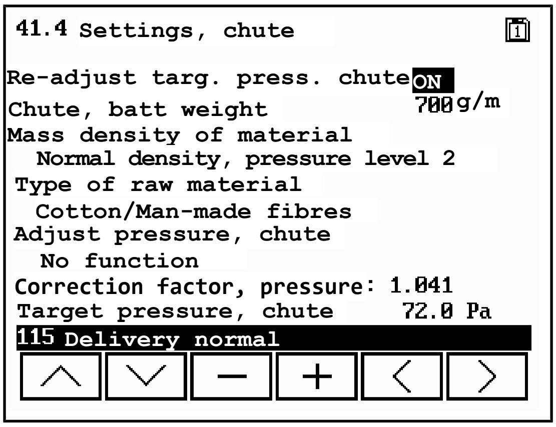
Volume of Card Chute	
Cotton (CO) with batt weight: 600 – 700 g/m	Small 5
Bleached cotton with batt weight: 600 – 700 g/m	
Some regenerated material with batt weight: 600 – 700 g/m	
Cotton (CO) with batt weight: 700 – 800 g/m OR:	Medium 4
Man-made fiber (MMF) with batt weight: 600 – 700 g/m	
Man-made fibers (MMF) with batt weight: 700 – 900 g/m (bulky MMF)	Large 3

Best Batt Weight at the Feed Trough	
Cotton (CO)	600 – 800 g/m
Man-made fiber (MMF)	700 – 900 g/m

1. Loosen the screws 1 2 6 7 8 and 10.
2. Put the card chute 9 at the top.
3. Tighten the screws 1 and 6.
4. Put the card chute 9 at the bottom.
5. Tighten the screws 2 7 8 and 10.
6. Measure the batt weight on the feed trough of the card.
7. If the batt is too heavy, narrow the chute.
8. If the batt is too light, widen the chute.
9. If the batt has holes, adjust the chute.

Result The batt weight is adjusted through the position of the card chute wall.

6.4.5.3 Adjusting the Batt Weight



```
41.4 Settings, chute

Re-adjust targ. press. chute ON
Chute, batt weight              700 g/m
Mass density of material
  Normal density, pressure level 2
Type of raw material
  Cotton/Man-made fibres
Adjust pressure, chute
  No function
Correction factor, pressure: 1.041
Target pressure, chute      72.0 Pa
115 Delivery normal
```

Figure 215: Data screen 41.4 Settings, chute

Chute, batt weight	
Feed batt weight	600 – 900 g/m

Prerequisites Make sure that the criteria are obeyed:

✓ The pressure monitoring sensor is adjusted. See *Adjusting the Pressure Monitoring Sensor ▸ 179*

1. Select the data screen 41.4.

Setting the Batt Weight

1. Enter the correct batt weight in the field **Chute, batt weight**.

Setting the Mass Density

1. Select the correct density in the field **Mass density of material**.
   - **Very low density, pressure level 4**
   - **Low density, pressure level 3**
   - **Normal density, pressure level 2**
   - **High density, pressure level 1**

Selecting the Material Type

1. Select the material type that is used in the field **Type of raw material**.
   - **Cotton/Man-made fibres**
   - **Regenerated mat./Bleached cotton**

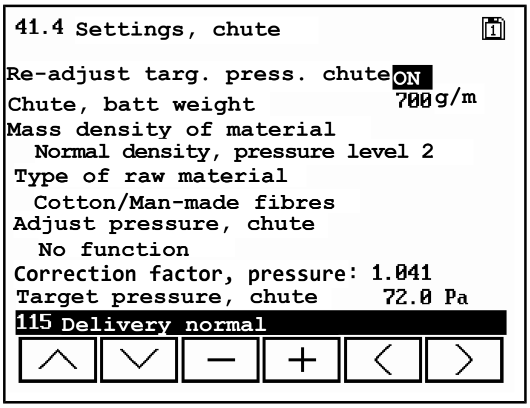
Commissioning

1. Start the card with the above configuration.
2. See the screen of the operating unit after 1 hour.
3. If one of the following messages is show, set the specified level in the field **Mass density of material**.
   - **Select chute `pressure level 1`**
   - **Select chute `pressure level 2` 41.4**
   - **Select chute `pressure level 3` 41.4**
   - **Select chute `pressure level 4` 41.4**

Result The batt weight is adjusted.

6.4.5.4 Examining the Batt Weight

1. Examine the batt weight on the main screen of the operating unit after one hour of normal speed production.
2. If the batt weight is correct, leave the selection **No function** in the field **Adjust pressure, chute** in the data screen 41.4.



```
41.4 Settings, chute

Re-adjust targ. press. chute ON
Chute, batt weight           700g/m
Mass density of material
  Normal density, pressure level 2
 Type of raw material
  Cotton/Man-made fibres
 Adjust pressure, chute
   No function
 Correction factor, pressure: 1.041
 Target pressure, chute     72.0 Pa
115 Delivery normal
```

Figure 216: Data screen 41.4

⇨ No correction is necessary.

3. If the machine does not run or badly runs because of heavy or light feed batt, set the density and configure the material type.
4. If bad running behavior occurs, select one of the below functions in the field **Adjust pressure, chute** in the data screen 41.4.

- **Feed batt too light, increase pressure**.
- **Feed batt too heavy, reduce pressure**.

Result The batt weight is examined.

6.4.5.5 Adjusting the Speed of the Opening Roller

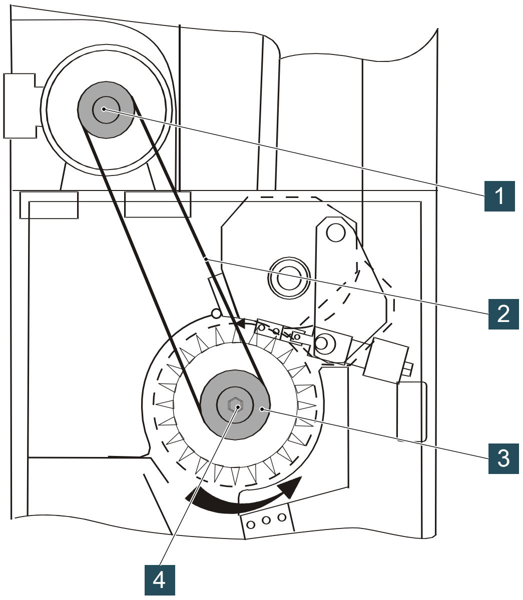


Figure 217: Opening roller speed

1. To select the correct pulley 1, refer to the gearing layout of card chute. See *Gearing Layout of the Card Chute* ▶ *190*

2. Remove the toothed belt 2.
3. Replace the pulley 1.
4. Make sure that the pulley 3 is not replaced.
5. Tighten the screw 4 with the tightening torque of 130 Nm.
6. Replace the motor.
7. Install the toothed belt 2.
8. Apply tension to the tooted belt 2. See *Applying Tension to the Timing Belt ▸ 228*

Result The speed of the opening roller is adjusted.

6.4.5.6 Applying Tension to the Timing Belt

Movement of the Timing Belt	
Movement 3 as a % of the distance between distance 1	1.50 %
Example: Movement 3 at approximately 1.5 % of the distance between distance (1 = 640 mm)	Approximately 10 mm
Force 2	Adjusted to the belt thickness

1. In the middle position of the distance 1, push the belt with force 2.

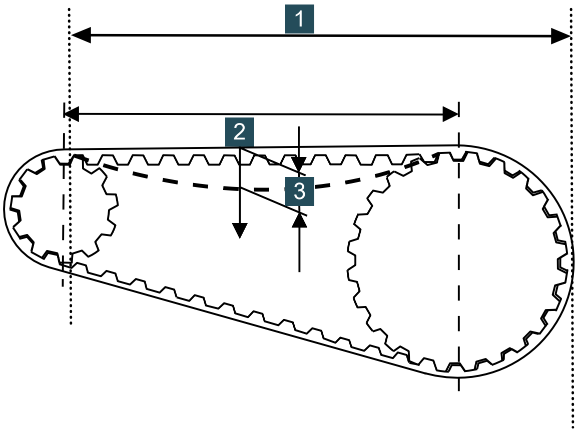


Figure 218: Toothed belt of the opening roller

2. Measure the movement 3.
3. If the movement 3 is less than 1.5 % of the distance 1, increase the belt tension.
4. If the movement 3 is more than 1.5 % of the distance 1, decrease the belt tension.

Result The tension is applied to the toothed belt.

6.4.5.7 Adjusting the Feed Trough to the Minimum Distance

Orientation The eccentric was set at the factory for the minimum distance between feed roller and the feed trough. Accordingly, the adjustment must only be made if the distance is no longer the same as the basic setting.

Disconnect the front covers until the feed roller and the feed trough are freely accessible for the adjustment.

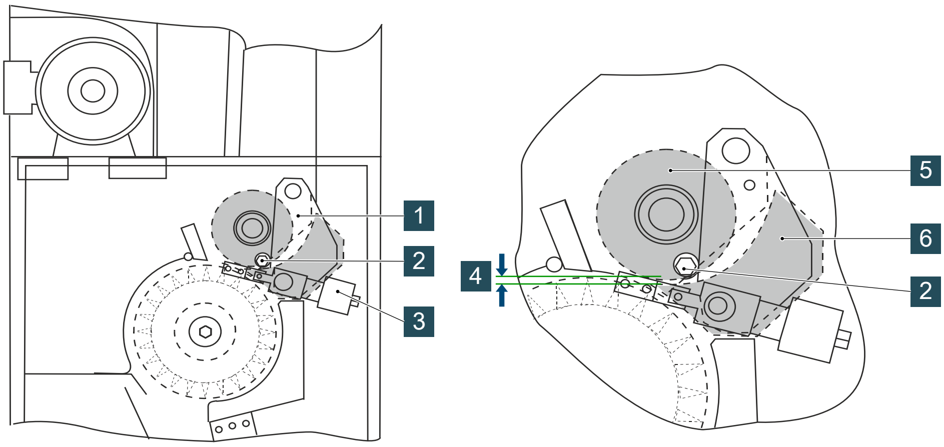


Figure 219: Adjustment of the feed trough

1. Put the tube 3 on the identification point 5.
2. To adjust the distance 4 between the feed roller 5 and feed trough 6 in the range from 1.00 mm to 1.20 mm, use the eccentric 2.
3. Make sure that the eccentric 2 is flush on 2 sides with the bearing plates 1.

Result The feed trough is adjusted to the minimum distance.

6.4.5.8 Adjusting the Feed Trough Load

1. Set the adjustment tubes 2 to the identification point 5 on the 2 sides.

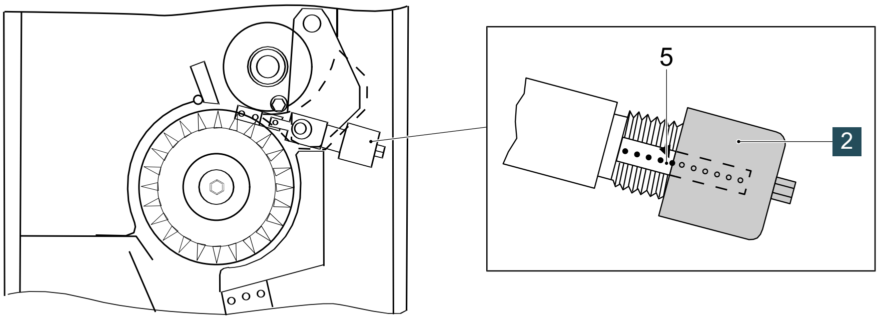


Figure 220: Adjustment of the feed trough load

2. Find the correct adjustment through trial and fault message method.
3. Move the adjustment tube 2 by 2 mark points for the initial analysis.
4. Examine the material flow.

5. Refer the material to increase or to decrease the load.

Result The feed trough load is adjusted.

6.4.6 Setting the Licker-In Unit

This section contains the information about how to set the licker-in unit.

6.4.6.1 Adjusting the Feed Plate

Orientation This section contains the information about how to adjust the feed plate between the card chute and the licker-in.

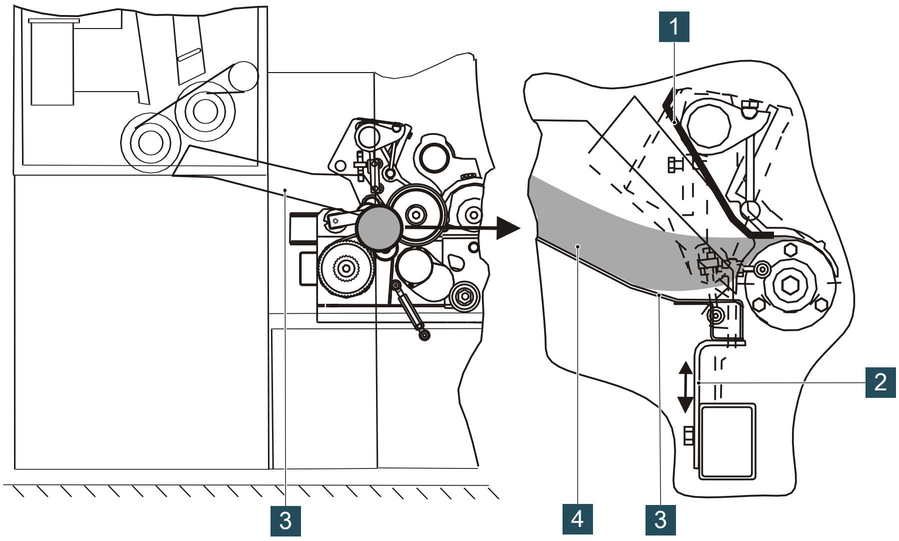


Figure 221: Feed plate

1. Adjust the feed plate 3 with the holder 2.
2. Make sure that the incoming material 4 does not collect on the guide plate 1.

Result The feed plate is adjusted.

6.4.6.2 Installing the Guide Plate

Orientation If the processing of the regenerated fibers is to be done, and the waste that is removed by the first mote knife is too high, the mote knife is to be replaced with the guide plate.

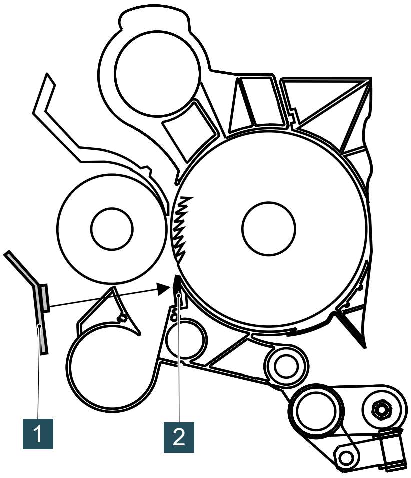


Figure 222: Guide plate and the mote knife

1. Remove the licker-in unit. See *Replacing the Licker-In Unit ▶ 557*
2. Adjust the extraction opening of the mote knife 2 to the minimum quantity of waste. See *Adjusting the Extraction Opening of the Mote Knife ▶ 238*
   ⇨ The mote knife 2 is open for access.
3. Remove the mote knife 2.
4. Install the guide plate 1.
5. Adjust the extraction opening of the mote knife 2 again.

Result The guide plate is installed.

6.4.6.3 Adjusting the Clamping Distance

1. Refer to the fiber length to set the nipping distance 2. See *Setting Sheets for Cotton ▶ 197*

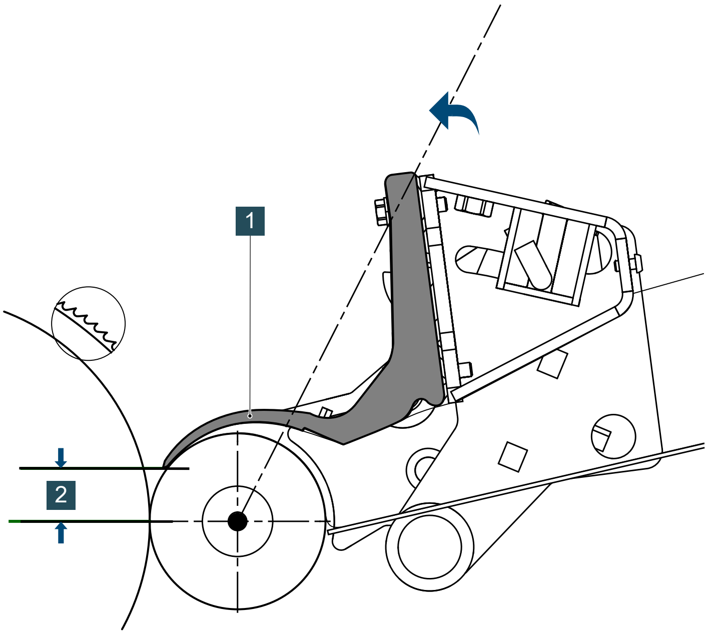


Figure 223: Nipping distance

2. Move the feed through 1 in the direction of the arrow to set the distance 2.
3. Read the actual distance 2 from the scale 3.
4. Loosen the 6 screws 6 lightly on the 2 side of the machine.
5. Tighten all 6 screws 6 slightly by hand.

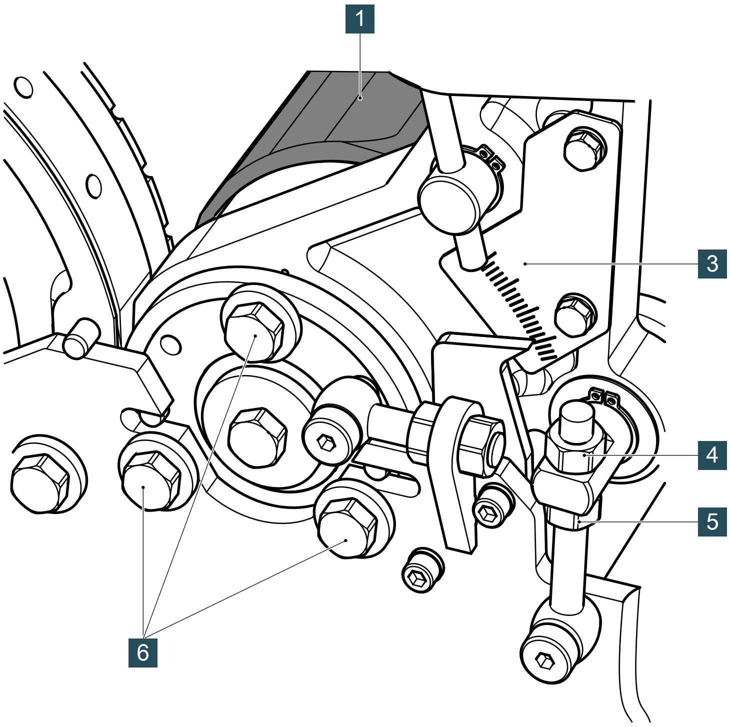


Figure 224: Setting the Nipping Distance

6. Loosen the nuts 4 and 5 on the left side of the machine.

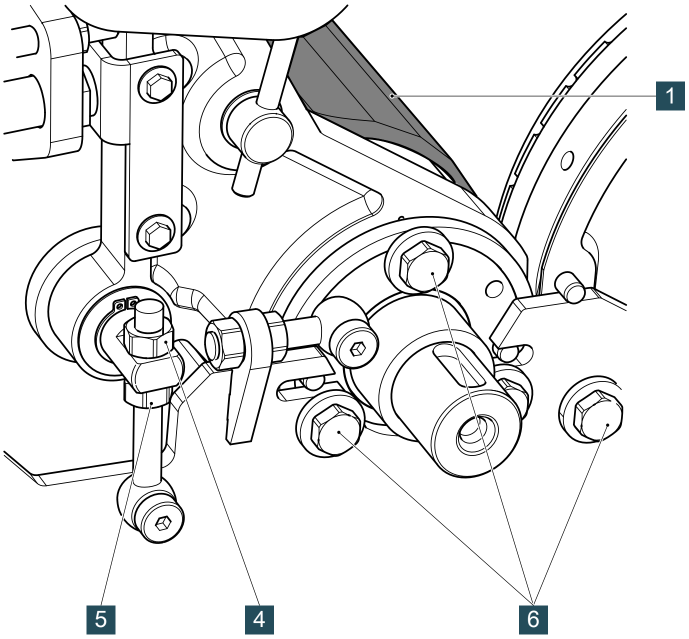


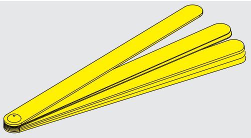
Figure 225: Nipping distance

7. Loosen the nuts 4 and 5 on the left side of the machine.
   ⇨ The feed trough can move.
8. Go to the right side of the machine.
9. Move the nuts 4 and 5 to adjust the nipping distance 2 until the correct value is shown on the scale 3.
10. Counter the nuts 4 and 5.
    ⇨ The pointer shows on the desired distance 2 on scale 3.
11. Tighten the nuts 4 and 5 with the hands, on the left side of the machine.
12. Tighten the 6 screws 6.
13. Counter the nuts 4 and 5.
    ⇨ Distance 2 is set.

Result The clamping distance is adjusted.

6.4.6.4 Making the Feed Trough Parallel to the Feed Roller

Orientation This section contains the information about adjusting the feed trough parallel to the feed roller.

Figure	Tool Name	Functional Description
	Card gauge	The card gauge is used to measure the distance between the machine parts.

Distance feed roller to feed trough 2	0.10 – 0.15 mm

Prerequisites Make sure that the criteria are obeyed:

- ✓ A card gauge is to be used.
- ✓ The feed trough is loaded.

1. Put the card gauge from the feed side 1.

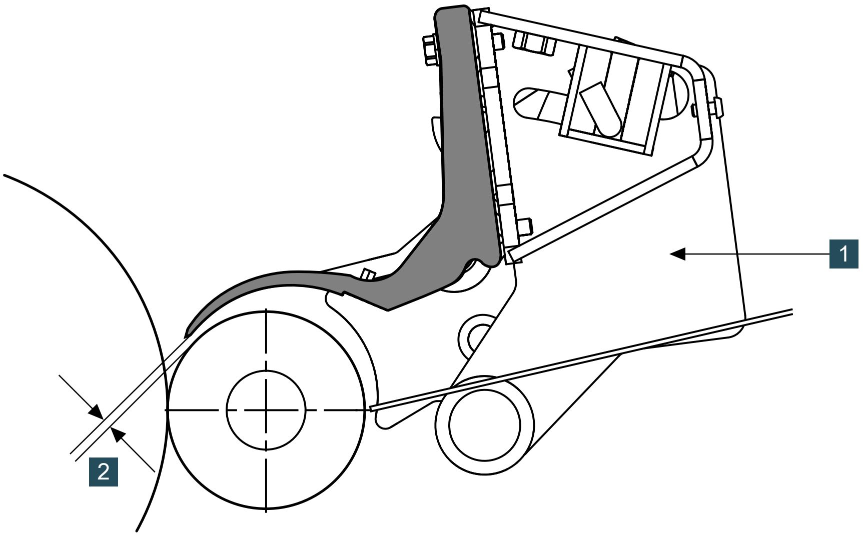


Figure 226: Adjustment of the feed trough parallel to the feed roller

2. Measure the distance 2 of the feed roller to the feed trough over the full width.
3. Go to the left side of the machine.

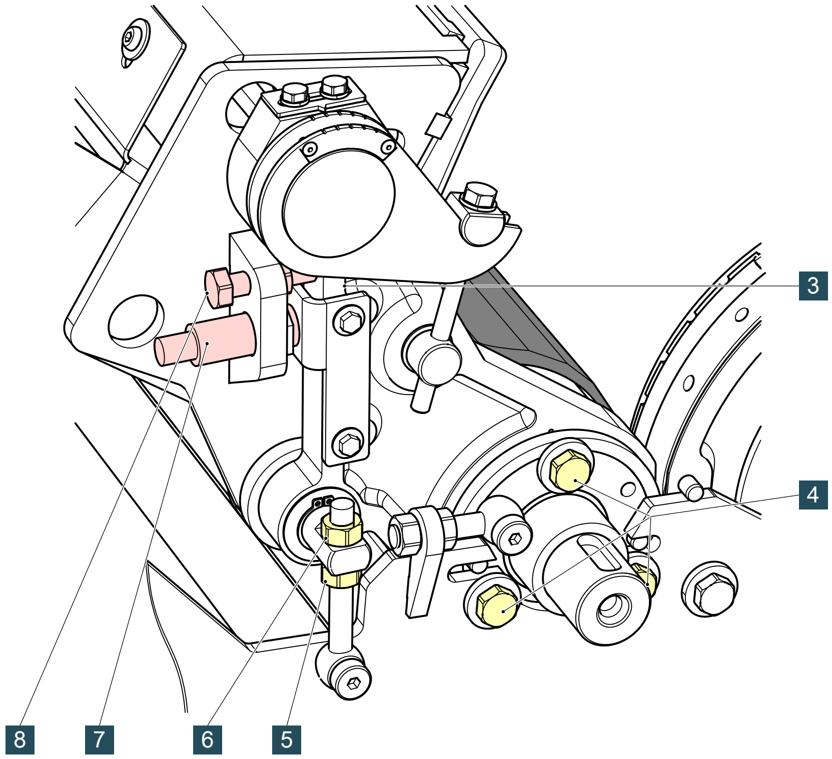


Figure 227: Feed trough parallel to the feed roller

4. Loosen the screw 8 to break the contact with the lever 3.
5. Turn the sensor 7 counterclockwise to break the contact with the initiator sheet.
6. Loosen the 3 screws 4 not fully.
7. Go to the right side of the machine.
8. Adjust the distance 2 with the screw 8.
9. Go to the left side of the machine.
10. Set the distance 2 with the nuts 6 and 5.
11. Measure the distance 2 over the full width.
12. Make sure that the distance 2 is correct over the full width.
13. Tighten the all 6 screws 4.
14. Screw 8 on the left hand side of the machine is used to stop the machine.
15. Tighten the screw 8 by hand.
16. Adjust the sensor 7.

Result The feed trough is parallel to the feed roller.

6.4.6.5 Examining the Modulation of the Measuring Device

Orientation This section contains the information about how to examine the control range of the measuring Device.

1. Select the data screen 11.1 **Production actual values, material** .
2. Read the actual value, in the field **Modulation scanner**.

   ⇨ If the value range is from 25 % to 40 %, the load is correct.
3. If the value is equal to or more than 40 %, increase the load.
4. If the value is equal to or less than 25 %, decrease the load.

Result The examining of the measuring device is done.

6.4.6.6 Setting the Feed Trough Load

Orientation The load on the feed trough must be set only if there are problems with the operations because of high batt or low batt.

The load is adapted to material: degree of opening, batt weight and type of feed roller (knurled, clothed).

Setting Range	
Minimum load	15°
Maximum load	40°
Maximum load for bleached cotton	30°

1. Select the data scree 11.1 **Production actual values, material**.
2. Read the actual value of the level control of the measuring device is 25 – 40 % in the filed **Modulation scanner**.

   ⇨ If the actual value is 25 – 40 %, the load is correct.
3. If the actual value is ≥ 40%, increase the load.
4. If the actual value is ≤ 40%, reduce the load.
5. Do the following steps on 2 sides.
6. Loosen the screw 5.

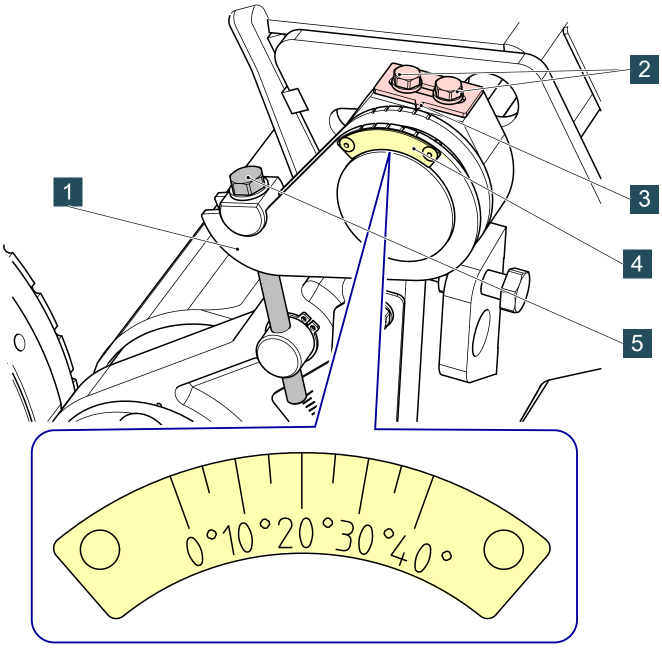


Figure 228: Adjustment of the load on the feed trough

⇨ The load on the clamping lever 1 is removed.

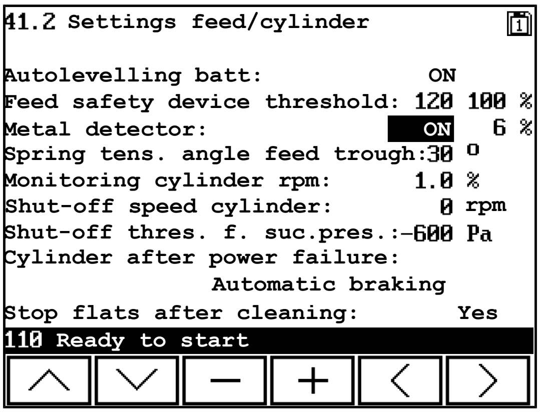
7. Push the clamp lever 1 downward.
   ⇨ No play in the bearings of the clamp lever 1.
8. Tighten the screw 5 with hand until it touches the clamping lever 1.
   ⇨ No load and no play on the clamping lever 1.
   ⇨ The position to calibrate the scale is set.
9. Loosen the screws 2.
10. Calibrate the indicator 3.
    ⇨ The indicator pin 3 shows the 0-mark on the scale 4.
11. Tighten the screws 2.
12. Set the load with the screw 5 refer to the above table.
    ⇨ The load is shown on the scale 4.

Result The feed trough load is set.

6.4.6.7 Entering the Angle of the Feed Trough

Load of the Feed Trough (Factory Setting)	
Cotton	30°
Blend	30°
Man-made fibers	20°

1. Select the data screen 41.2.



```
41.2 Settings feed/cylinder

Autolevelling batt:                ON
Feed safety device threshold: 120 100 %
Metal detector:                    ON   6 %
Spring tens. angle feed trough:30 °
Monitoring cylinder rpm:         1.0 %
Shut-off speed cylinder:           0 rpm
Shut-off thres. f. suc.pres.:-600 Pa
Cylinder after power failure:
               Automatic braking
Stop flats after cleaning:          Yes
110 Ready to start
```

Figure 229: Data screen 41.2

2. To enter the angle in the field **Spring tens. angle feed trough** in the data screen 41.2, refer to the above table.

   ⇨ The load of the feed trough is depends on material.

Result The angle of the feed trough is entered.

6.4.6.8 Adjusting the Extraction Opening of the Mote Knife

Orientation The discharge opening determines the quantity of waste. The objective of the adjustment is to keep the correct quantity of the licker-in waste.

Discharge Opening at the Licker-in	
Minimum clearance: Minimal extraction	≥ 40.0 mm
Standard setting: All materials	50.0 mm
Maximum clearance: Maximal extraction	≤ 70.0 mm

Manual Adjustment of the Mote Knife

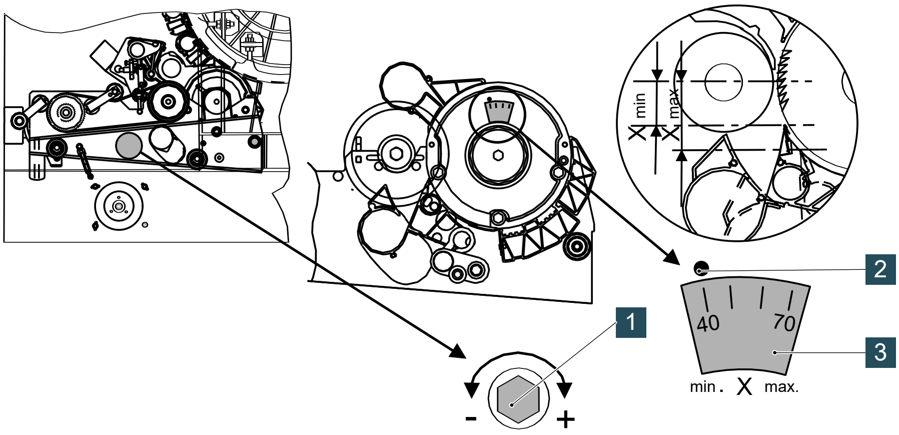


Figure 230: Manual adjustment of the discharge opening

1. To select the correct discharge opening for the material, refer to the table above.
2. Turn the adjustment screw 1 until the correct mark 2 is on the scale 3.

   ⇨ The manual adjustment of the mote knife is done.

Automatic (Motor Driven) Adjustment of the Mote Knife

Ejection distance of the licker-in	41 – 71 mm

1. To select the correct discharge opening for the material, refer to the table above.
2. Enter the distance in the field **Ejection dist. licker-in**, in the data screen 10.3 **Production setpoints options**.

   ⇨ The automatic adjustment of the mote knife is done.

Result The extraction opening of the mote knife is adjusted.

6.4.6.9 Adjusting the Mote Knife to the Licker-In

This section contains the information about how to adjust the mote knife to the licker-in manually and automatically.

NOTICE

Exceeded the discharge opening!

Damage of the adjustment device because of the discharge opening is exceeded

▶ Do NOT exceed the minimum or maximum discharge opening.

Doing the Mote Knife Adjustment Manually

Prerequisites Make sure that the criteria are obeyed:

✓ The licker-in unit is removed. See *Replacing the Licker-In Unit* ▸ *557*

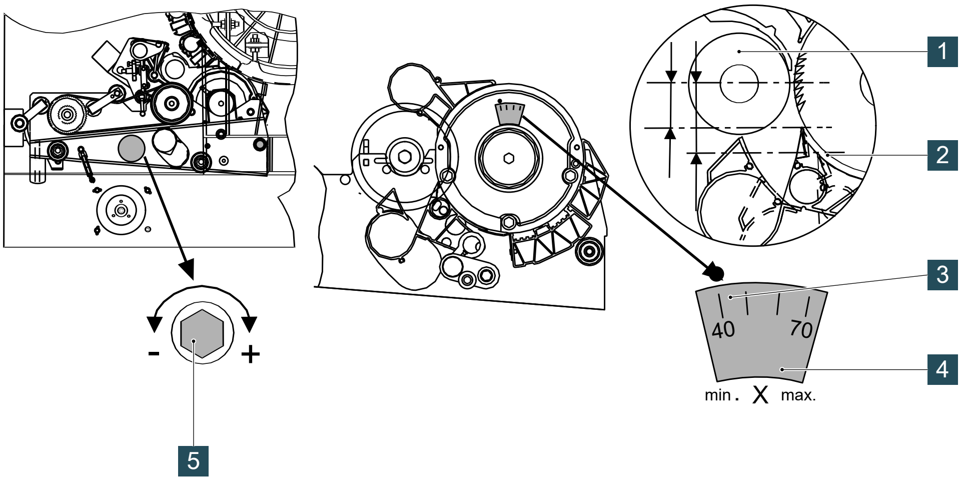


Figure 231: Mote knife adjustment (manual)

1. Turn the adjusting screw 5 until the necessary distance for the discharge outlet is related to the mark 4 on the scale 3.

   ⇨ The mote knife adjustment is done manually.

Doing the Mote Knife Adjustment (Motor-driven)

Adjustment Point 19 Basic Setting	
Adjustment point 17(C) set to maximum discharge opening	70.0 mm
Set distance on the adjustment point 19.	0.70 mm

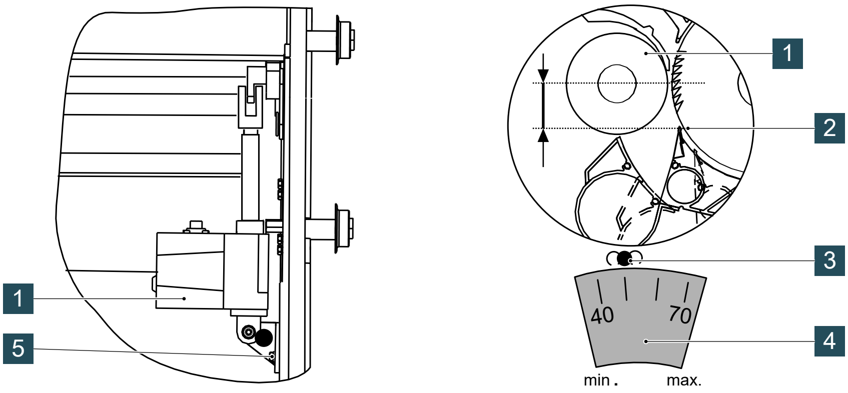


Figure 232: Mote knife adjustment

1. Enter the ejection distance of the liker-in in the field **Ejection dist. licker-in** in the data screen 10.3.
2. Make sure that ejection distance of the licker-in is 41 – 71 mm.

   ⇨ The distance is aligned to the material.

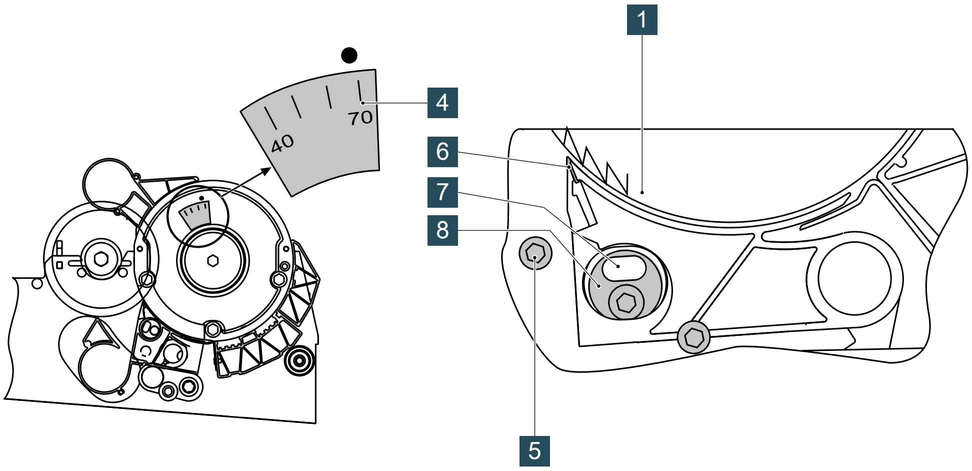


Figure 233: Mote knife adjustment (motor-driven)

3. Set the mote knife to its maximum discharge opening.

   ⇨ Applicable the adjustment of the discharge opening, the mote knife runs eccentrically to the licker-in.

4. Loosen screws 5 on the 2 sides.
5. Put a hexagonal key into the opening 7 of the eccentric 8.
6. Adjust the eccentric 8 with a hexagonal key until the correct dimension is at the adjustment point 19 between the mote knife 6 and licker-in 1.
7. Tighten all screws 5.

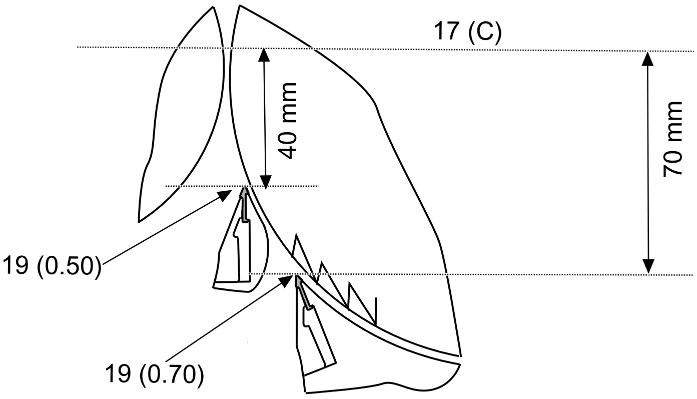


Figure 234: Mote knife adjustment (motor-driven)

⇨ The specified discharge opening distances result in the stated values at the adjustment point 19.

Result The adjustment of the mote knife to the licker-in is done.

6.4.6.10 Adjusting the Suction Openings

Suction Opening Width	
Adjustment range	0.0 – 6.0 mm

Suction Opening Width	
Factory-set	3.0 mm

1. Monitor the position of the screws 1 relative to the mark 2.

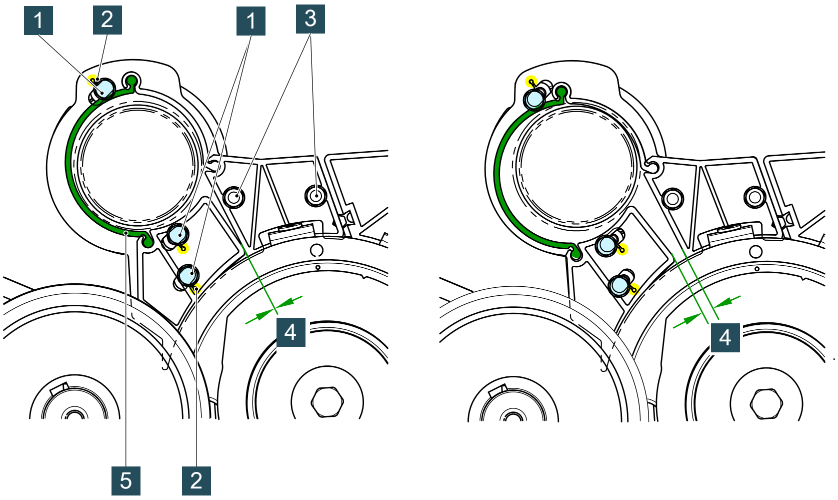


Figure 235: Suction openings at the licker-in

2. Loosen the screws 1.
3. Make sure that do not loosen the screws 3.
4. Move the screws 1 in the necessary direction.
   - ⇨ The suction opening width 4 is changed.
   - ⇨ The cover 5 adapts to the suction opening width 4.
5. Adjust the suction opening width 4 for removal of the dirt air related to the material and the licker-in speed refers to the above table.
6. Make sure that the mark 2 is in the center of the screw 1.

Result The suction openings are adjusted.

6.4.6.11 Adjusting the Electric Cylinder for the Mote Knife

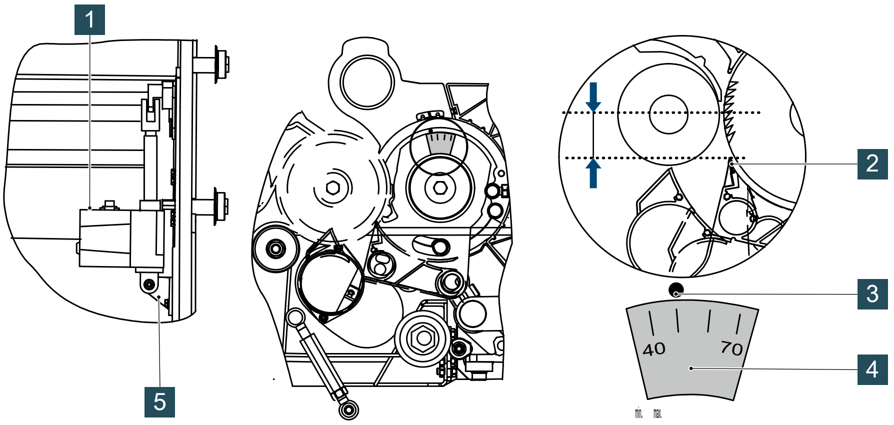


Figure 236: Electric cylinder for the mote knife

1. Examine the basic default adjustment of the mote knife after replacement of the electric cylinder 1.
2. Do not disconnect the fork head from the electric cylinder 1.

Moving to the Referenced Position

1. Select the data screen 85.7.
2. Select **Approach ref. position**in the field **Function**

   ⇨ The electric cylinder 1 moves to the referenced position.

Moving to the Target Position

1. Select **Approach setpoint pos.** in the field **Function**.

   ⇨ The electric cylinder 1 moves to the target position.

2. Examine if the scale 4 is at the target position 50 mm.
3. If the target position is incorrect, mechanically adjust the position of the mote knife.

Mechanically Adjusting the Position of the Mote Knife

1. Refer to the target position in the data screen to move the holders 5 until the mark 3 on the scale 4 is correct.

   ⇨ The moto knife is at target position.

Examining the Adjustment

1. Select the data screen 85.7.
2. Select **Approach min. position**in the field **Function**
3. See the value on the scale 4.

4. If the scale 4 does not show the values 40, mechanically adjust the position of the mote knife.
5. Select **Approach max. position** in the field **Function** in the data screen 85.7.
6. See the value on the scale 4.
7. If the scale 4 does not show the values 70, mechanically adjust the position of the mote knife.

Result The electric cylinder for the mote knife is adjusted.

6.4.6.12 Adjusting the Distance between the Licker-In and the Cylinder

1. Remove the lower cylinder cover 1.

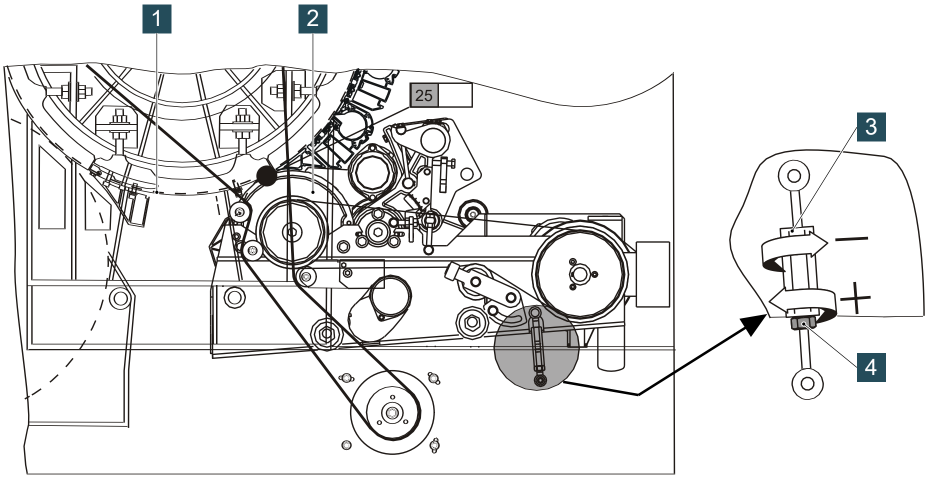


Figure 237: Adjustment of the licker-in

2. Make the adjustments on the 2 sides always.
3. Loosen the nuts 4 from the 2 sides.
4. To decrease the distance between the licker-in 2 and the cylinder, turn the nuts 3 counterclockwise on the 2 sides.
5. To increase the distance between the licker-in 2 and the cylinder, turn the nuts 3 clockwise on the 2 sides.
6. Tighten the nuts 4.
7. Examine the adjustment again.
8. Install the lower cylinder cover 1.

Result The distance between the licker-In and the cylinder is adjusted.

6.4.6.13 Adjusting the Carding Element

Orientation The service life of carding elements depends on the production, material, and contamination.

The clothing manufacturer recommends that the carding elements be changed at the latest with the cylinder clothing.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The completed licker-in unit is removed.
- ✓ Blunt carding elements are replaced.

1. Measure the actual distance between the carding element 5 and the licker-in 1.

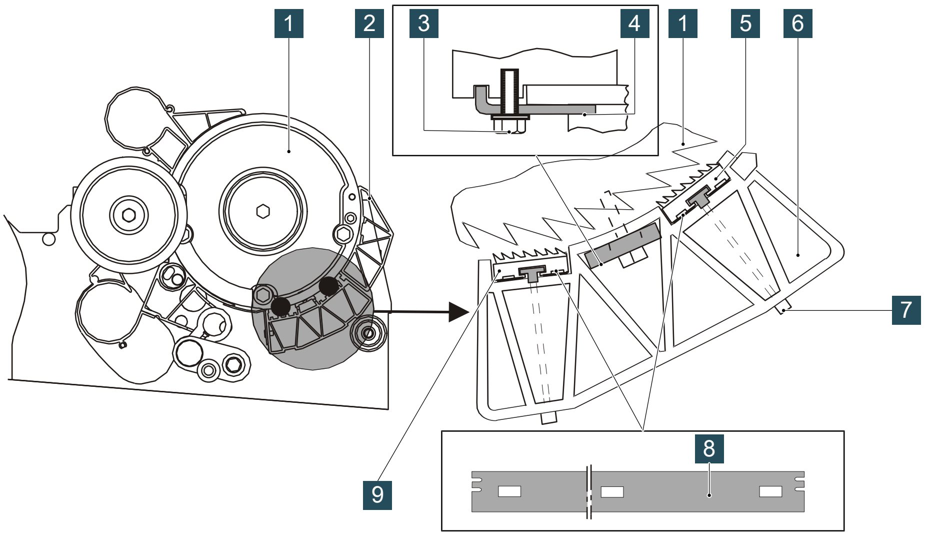


Figure 238: Carding element in the area of the licker-in

2. Refer to the target distance to select the correct filler strips 8.
3. Adjust the distance between the element holder 6 and the carding element 5 with the filler strip 8.
4. Remove the screws 3 and the clamp piece 4.

   ⇨ The element holder 6 can be removed.
5. Remove the element holder 6.
6. Remove the screws 7.
7. Replace the filler strips 8.
8. Tighten the screws 7 with the tightening torque of 3.0 Nm.
9. Install again the element holder 6.
10. Install the screw 3 on the clamp piece 4 with a small pressure.
11. Tighten the screw 3 with 1/4 turn.
12. Examine the adjustment.

Result The carding element is adjusted.

6.4.6.14 Adjusting the Distance between the Feed Roller and the Licker-In

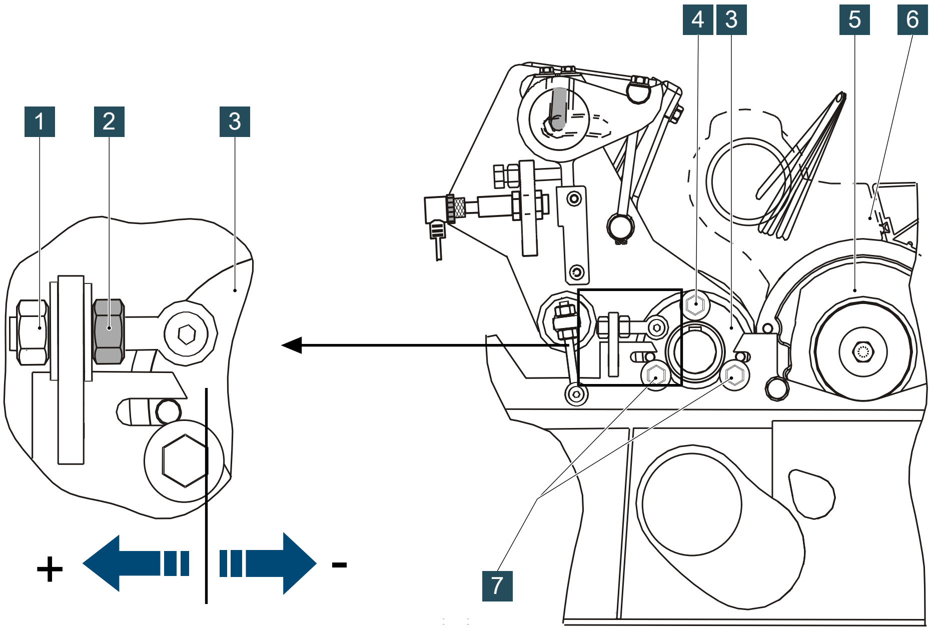


Figure 239: Feed roller and the licker-in

1. Remove the suction tube 7 above licker-in 6.
2. Loosen the screws 8 not fully.
3. Do not loosen the screws 5.
4. To decrease the distance between feed roller 3 and licker-in 6, loosen the nut 1 and use the nut 2.
5. To increase the distance between feed roller 2 and licker-in 6, loosen the nut 2 and use the nut 1.

Result The distance between the feed roller and the licker-in is adjusted.

6.4.7 Setting the Cylinder

This section contains the information about how to set the cylinder.

6.4.7.1 Adjustment of the Distances

Priority	Dimension
Priority 1	Second dimension (center)
Priority 2	First dimension (edge)

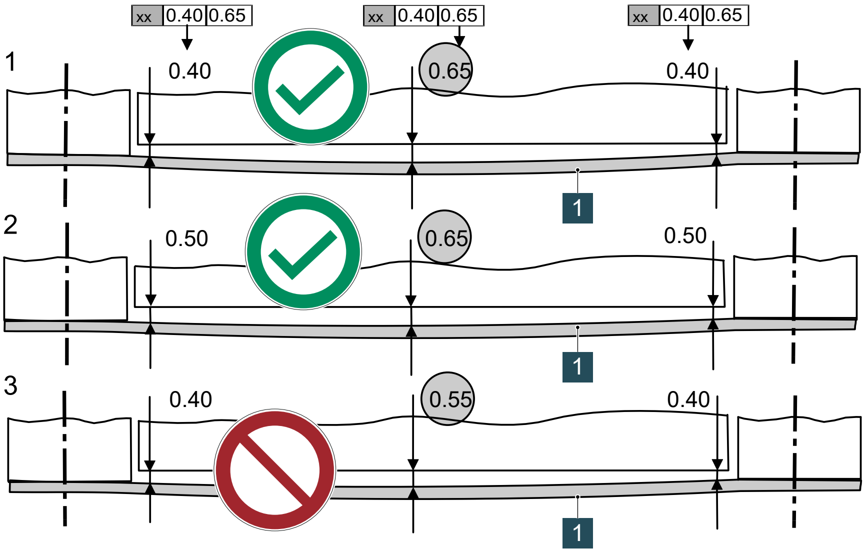


Figure 240: Adjustment of the distances

The elements around the cylinder have concave shapes. Thus, the distance of the element measured from the cylinder is always larger at the center of the cylinder.

In the machine setting sheets, the first dimension means the edge of cylinder and the second dimension means the center of the cylinder. When adjusting the distance, the first priority is to maintain the second dimension (center).

6.4.7.2 Adjusting the Cylinder Covers

1. To set the adjustment points, refer to the dimensions given in the adjustment guideline.
2. Examine the adjustment over the entire machine width.
3. Obey with the instructions. See *Adjustment of the Distances ▸ 246*
4. Tighten the adjustment nuts 1 and 2 against each other.

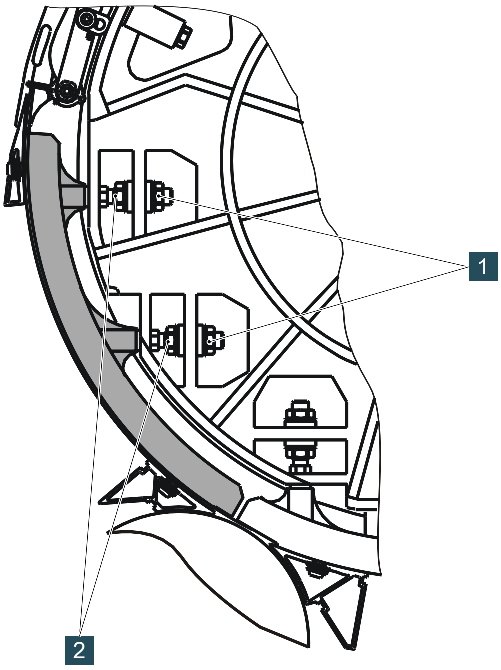


Figure 241: Adjustment of the cylinder covers

5. Loosen the nut 1.
6. Tighten the nut 2 to increase the distance.
7. Loosen the nut 2.
8. Tighten the nut 1 to decrease the distance.
9. Examine the adjustment points are at the center of the machine. See *Doing the Stabilization of the Cylinder Covers in the Machine Center ▸ 248*

Result The cylinder covers are adjusted.

6.4.7.3 Doing the Stabilization of the Cylinder Covers in the Machine Center

Orientation The adjustment points 46 and 56 in the center of the machine have an additional stabilizing elements.

1. To set the adjustment point 56 3 and point 46 4 in the center of the machine, refer to the machine setting sheets. See *Machine Setting Sheets ▸ 197*

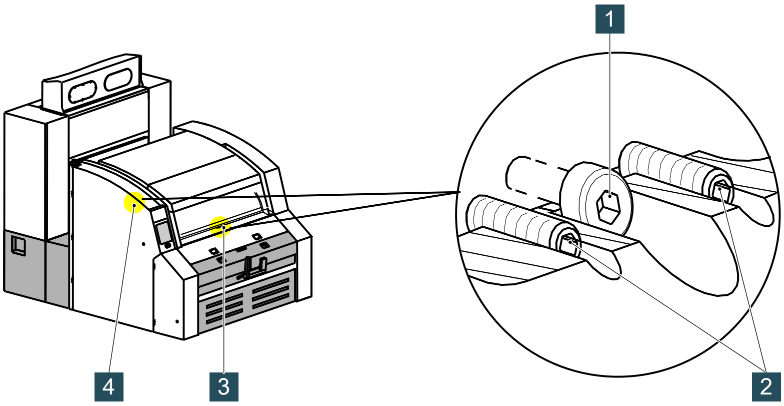


Figure 242: Stabilizing the cylinder covers

2. Remove the card flat unit. See *Replacing the Card Flat Unit ▸ 573*

   ⇨ The adjustment points can only be accessed when the card flat unit is removed.

3. Adjust the cylinder covers. See *Adjusting the Cylinder Covers ▸ 247*
4. To increase the distance to the cylinder, loosen the screw 1 and adjust the distance with the screws 2.
5. Tighten the screw 1 again.
6. To decrease the distance to the cylinder, loosen the screws 2 and adjust the distance with the screw 1.
7. Tighten the screw 2 again.

Result The stabilization of the cylinder covers in the machine center is done.

6.4.7.4 Adjusting the Carding Profiles to the Cylinder Clothing

Orientation This section contains the information about how to adjust the carding profiles to the Cylinder Clothing (Man-Made Fiber).

Notch Distance	Thickness (mm)
Long	0.10
Short	0.05

The adjustment segments are used to adjust the cylinder covers. A change in the factory settings for the cylinder covers relative to the cylinder clothing also results in a change in the factory-set distances of the carding profiles. The distance between the carding profiles and the cylinder clothing must now be adjusted using spacers.

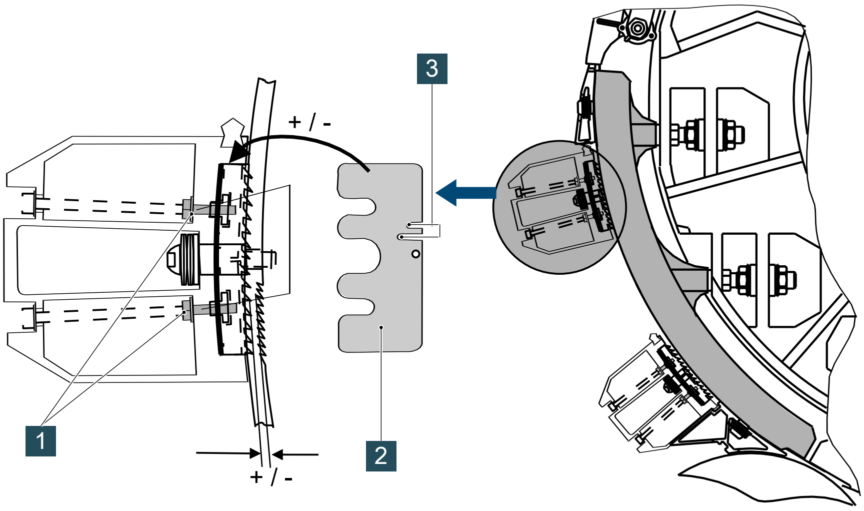


Figure 243: Adjustment of the carding profile

1. Loosen the screws 1.
2. Remove the shims 2.
3. Examine the notch distance 3 to get the information about the thickness of the shims 2.
4. Refer the table to get the information about the thickness of the shims 2.
5. Install the shims 2 of the necessary thickness.
6. Move the shims 2 between the substrate.
7. Tighten the screws 1.

Result The carding profile is adjusted to the cylinder clothing.

6.4.7.5 Adjusting the Carding Profiles

Orientation This section contains the information about how to adjust the carding profiles to the cylinder clothing (cotton). A change in the factory adjustments for the cylinder covers relative to the cylinder clothing also results in a change in the factory–set distance of the carding profiles.

The distance between the carding profile and the cylinder clothing is changed through different shims. The distance between the carding profile and the cylinder clothing must be adapted to the material.

Notches for Determining the Thickness of the Shims	
Long	0.10 mm
Short	0.05 mm

1. Adjust the cylinder covers 1 with the adjustment segments 2.

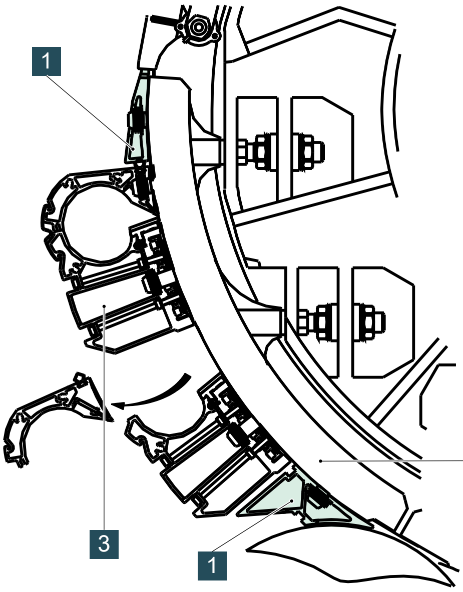


Figure 244: Adjustment of the carding profile

2. Adjust the distance between the carding profiles 3 and the cylinder clothing with the shims 4.

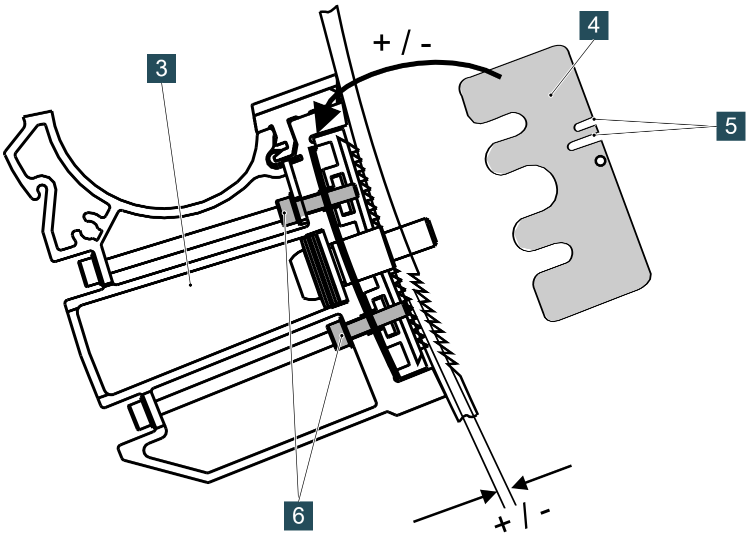


Figure 245: Adjustment of the distance of the cylinder clothing

3. Loosen the screws 6.
4. Remove the shims 4.
5. Refer to the notches 5 to get the correct thickness of the shims 4.
6. Install the shims 4 of the necessary thickness.
7. Move the shims 4 between the substrate.
8. Tighten the screws 6.

Result The carding profiles are adjusted.

6.4.7.6 Adjusting the Carding Profile in the Doffer Area

Notches for Determining the Thickness of the Shims	
Long	0.10 mm
Short	0.05 mm

Orientation This setting procedure applies to the man-made fibers.

The adjustment segments are used to adjust the cylinder covers.

A change in the adjustment for the cylinder covers relative to the cylinder clothing also results in a change in the set distance of the carding element. The distance between the carding element and the cylinder clothing is adjusted using spacers.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The adjusting segment is to be adjusted.
- ✓ The cylinder cover is to be adjusted. See *Adjusting the Cylinder Covers* ▸ *247*

1. Remove the carding profile 1.

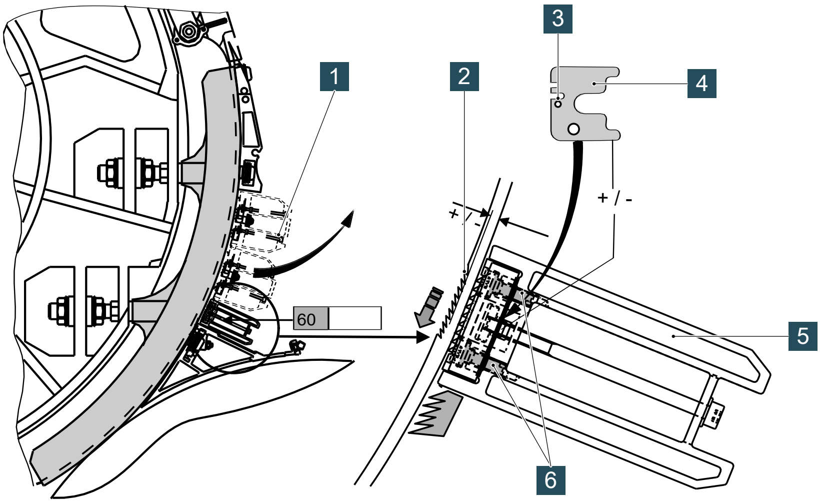


Figure 246: Adjusting Carding Profile

2. Measure the distance between the cylinder clothing 2 and the carding element 5. The variation between these two elements can be compensated by adding or removing the supplied spacers 4 until the desired dimension is achieved.
3. Remove the carding element 5.
4. Loosen the screws 6.
5. Remove the shims 4.
6. Refer to the table to select the correct thickness of the shims 4.
7. Install the shims 4 of the necessary thickness.
8. Tighten the screws 5.
9. Install the carding element 4.

10. Install the carding profile 1.
11. Make sure that the carding element 4 has the same distance from the cylinder clothing 2 on the 2 sides.

Result The carding profile in the doffer area is adjusted.

6.4.7.7 Adjusting the Mote Knife in the Pre-Carding Zone

Orientation This section contains the information about how to adjust the Mote Knife (Pre-Carding Zone, Cotton).

Notch Distance	Thickness (mm)
Long	0.10
Short	0.05

The adjustment segments are used to adjust the cylinder covers.

A change in the factory settings for the cylinder covers relative to the cylinder clothing also results in a change in the factory-set distances of the mote knives.

The distance between the mote knives and the cylinder clothing is adjusted using spacers.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The adjusting segment is to be adjusted.
- ✓ The cylinder cover is to be adjusted. See *Adjusting the Cylinder Covers ▸ 247*

1. Obey with the instructions for fastening the cylinder covers.
2. Remove the carding element 4.

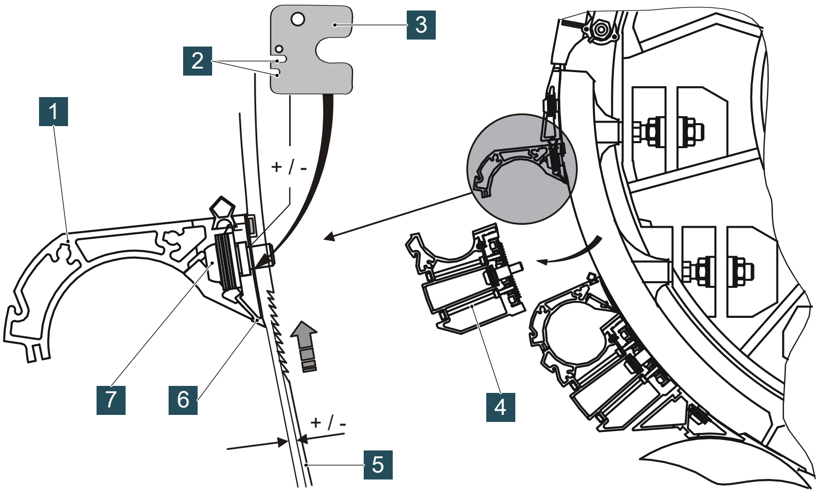


Figure 247: Adjustment of the mote knife in the pre-carding zone

3. Measure the distance between the cylinder clothing 5 and the mote knife 6.
   ⇨ The adjustment is incorrect, if the test gauge is caught between the cylinder clothing 5 and the mote knife 6.
4. Remove the screw 7.

5. Remove the support 1.
6. Remove the shims 3.
7. Examine the notch 2 to get information about the thickness of the shims 3.
8. Refer to the table to select correct thickness of the shims 3.
9. Adjust the distance with the supplied shims 3.
10. Measure the distance between the mote knife 6 and the cylinder clothing 7 again.
11. Make sure that the distance is the same on the left and the right side of the machine.
12. Install the support 1 with the screw 7.
13. Examine the adjustment.
14. Install the carding element 4.

Result The mote knife is adjusted.

6.4.7.8 Adjusting the Mote Knife in the Post-Carding Zone

Orientation This section contains the information about how to adjust the monte knife in the post carding zone (Cotton).

The adjustment of the mote knife in the post-carding zone is the same as in the pre-carding zone.

1. Remove the card flat unit. See Removing the Card Flat Unit
2. Adjust the adjusting segments.
3. Adjust the cylinder covers 1.See *Adjusting the Cylinder Covers ▸ 247*
4. Adjust a mote knife in the knife support 2 with the shims 5.

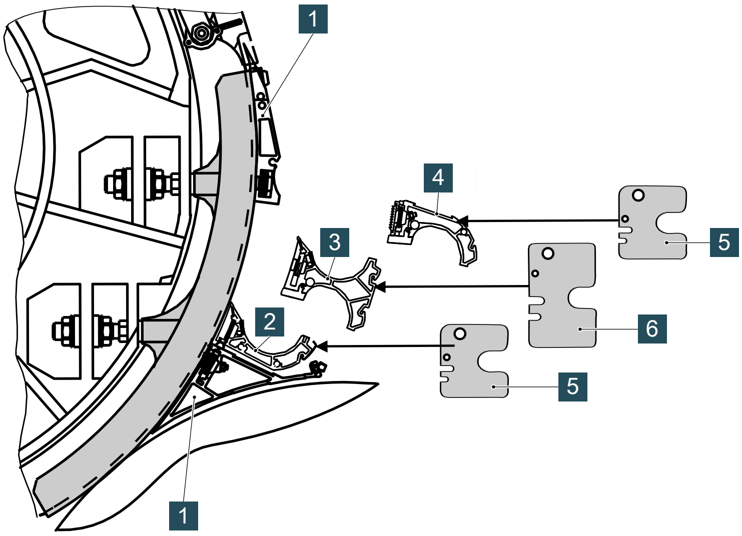


Figure 248: Adjustment of the mote knife in the post-carding zone

5. Adjust a mote knife in the knife support 3 with the shims 6.
6. Adjust a mote knife in the knife support 4 with the shims 5.
7. Increase the distance of the cylinder clothing (change works setting, pre-carding zone). See *Adjusting the Mote Knife in the Pre-Carding Zone ▸ 253*

Result The mote knife is adjusted.

6.4.7.9 Adjusting the Extraction Distance of the Mote Knife

Discharge Opening: Pre-Carding Zone / Post-Carding Zone	
Largest distance	Strip number 0
Larger distance	Strip number 2
Standard adjustment	Strip number 5
Lower distance	Strip number 8

1. Adjust the carding profiles relative to the cylinder clothing (pre-carding zone, cotton).

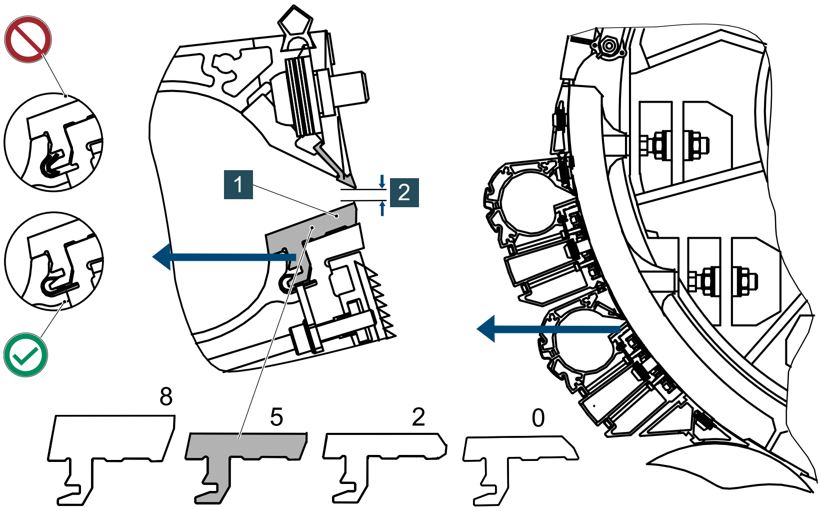


Figure 249: Discharge Distance (pre-carding and post-carding zone)

2. Adjust the mote knife, (pre-carding zone and post-carding zone, cotton).
3. Write numbers on the strips for identification.
4. Remove the strip 1.
5. Put the correct number of strips 1 to adjust the discharge distance 2.

Result The extraction distance of the mote knife is adjusted.

6.4.7.10 Sealing Lamella at the Tongue

Prerequisites Make sure that the criteria are obeyed:

✓ Loctite 243 is to be used.

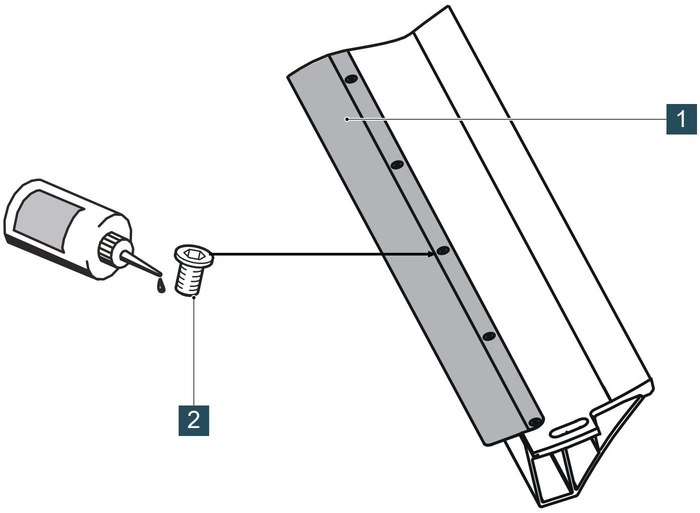


Figure 250: Tongue, Sealing Strip

1. Apply a small quantity of adhesive on the screws 2.
2. Tighten the screws 2 with the tightening torque of 1.20 Nm.
3. Make sure that the seal strip 1 typically remains fitted to the tongue.
4. Make sure that the damaged seal strip must be removed from the tongue.

Result The strip on the tongue is sealed.

6.4.7.11 Adjusting the Tongue Position

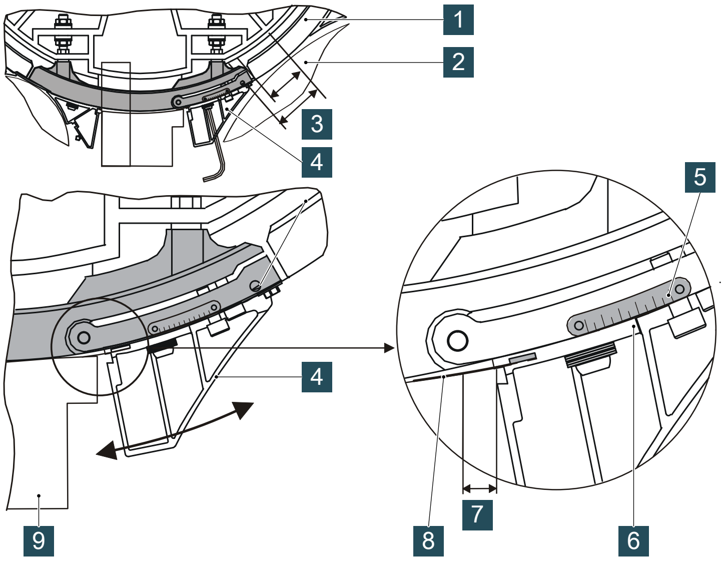


Figure 251: Tongue position

1. Move the tongue until the mark 6 on the tongue 4 is at the correct position on 2 sides of the scale 5.
2. Make sure that the distance 7 between the tongue and fiber transfer point at doffer is in the range of approximately 2 – 25 mm.

3. Callout number 1, 2, 3, 8 and 9 are not mentioned in the source content.

   ⇨ The opening between tongue and cylinder cover or the IGS-classic related, to be close with a seal strip for the optional setting of the tongue.

Result The tongue position is adjusted.

6.4.7.12 Adjusting the Distance between the Tongue and the Cylinder

Orientation For problems with the fiber transfer point at the doffer, the tongue / doffer position is to be taken into account in addition to the tongue / cylinder distance.

When the cylinder cover is installed and the doffer adjusted, the distance from tongue to cylinder clothing can only be measured via the measurement between the control eccentric and the cylinder shield. If the control eccentric is adjusted correctly, this measurement corresponds to the distance between tongue and cylinder.

Do not adjust the control eccentric.

The user can tighten the screws 2 and 3 to adjust each other to set the distance from the tongue to the cylinder.

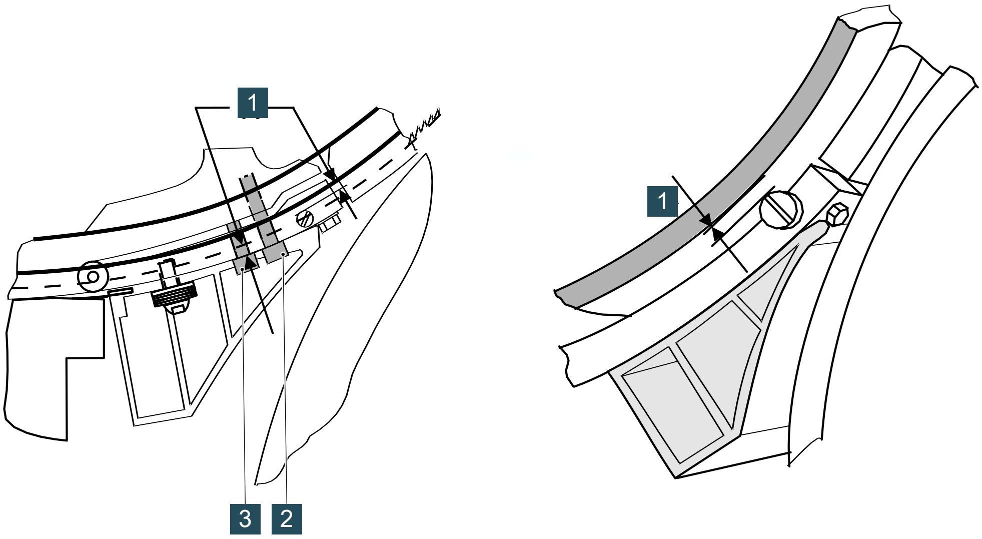


Figure 252: Adjustment of the distance from the tongue to the cylinder

1. Loosen the screw 2 and tighten the screw 3 to increase the distance 1.
2. Loosen the screw 3 and tighten the screw 2 to decrease the distance 1.
3. To adjust the distance 1, only tighten the screws 2 and 3 but not fully against each other.
4. If necessary, adjust the tongue position.

Result The distance between the tongue and the cylinder is adjusted.

6.4.7.13 Applying Tension to the Cylinder Belt

Orientation This section contains the information about how to apply and release tension of the cylinder belt.

Releasing the Tension

1. Push the deflection pulley 1 down with the open-end wrench.
   ⇨ The belt is loosened.

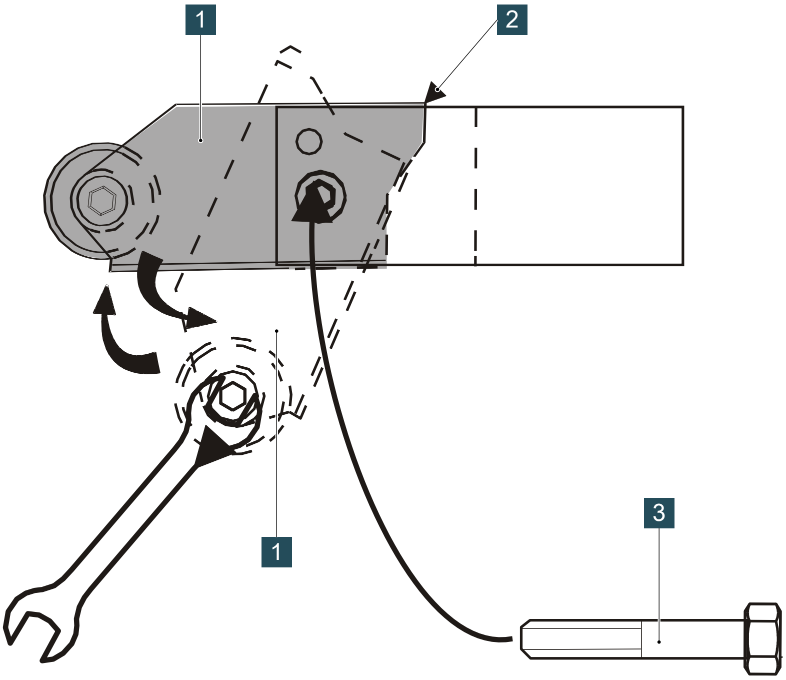


Figure 253: Cylinder belt with deflection pulley

Applying Tension without Pulley Replacement

1. Put the belt correctly.
2. Move up the deflection pulley 1 to the limit position 2 with a wrench.

Applying Tension after a Pulley Replacement

1. Correctly adjust the tension in the belt after the belt pulley is changed.
2. Put the drive motor accordingly. See *Adjusting the Tension of the Cylinder Belt ▸ 259*
3. Put the belt correctly.
4. Move up the deflection pulley 1 to the limit position with a wrench 2.

Securing the Deflection Pulley

1. Attach the deflection pulley 1 with the screw 3 when the deflection pulley 2 is in the load position.

Result The tension is applied to the cylinder belt.

6.4.7.14 Adjusting the Tension of the Cylinder Belt

Belt Tensioned Distance 2	
Cylinder drive, capacity L	508.0 mm (Belt thickness of 2 mm)
Cylinder drive, capacity M	
Cylinder drive, capacity H	506.5 mm (Belt thickness of 2.5 mm)

1. Identify 2 lines 1 on a new cylinder belt at the distance 2 of 500 mm.

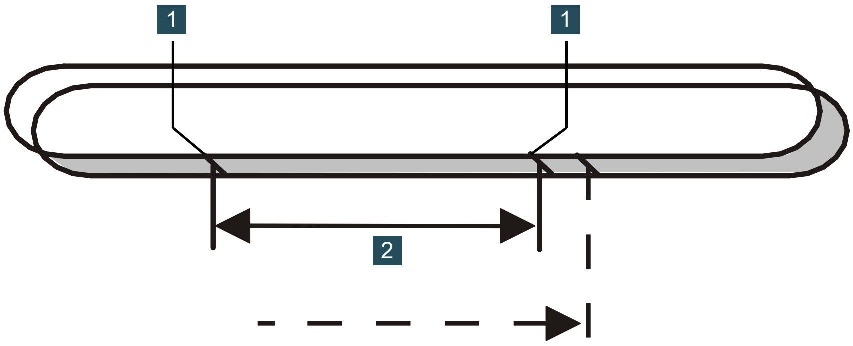


Figure 254: Identify the lines on the cylinder belt

2. In the case of a used belt look for the original mark.

   ⇨ The belts become slightly longer through use, must always be tension only to the initial distance 2.

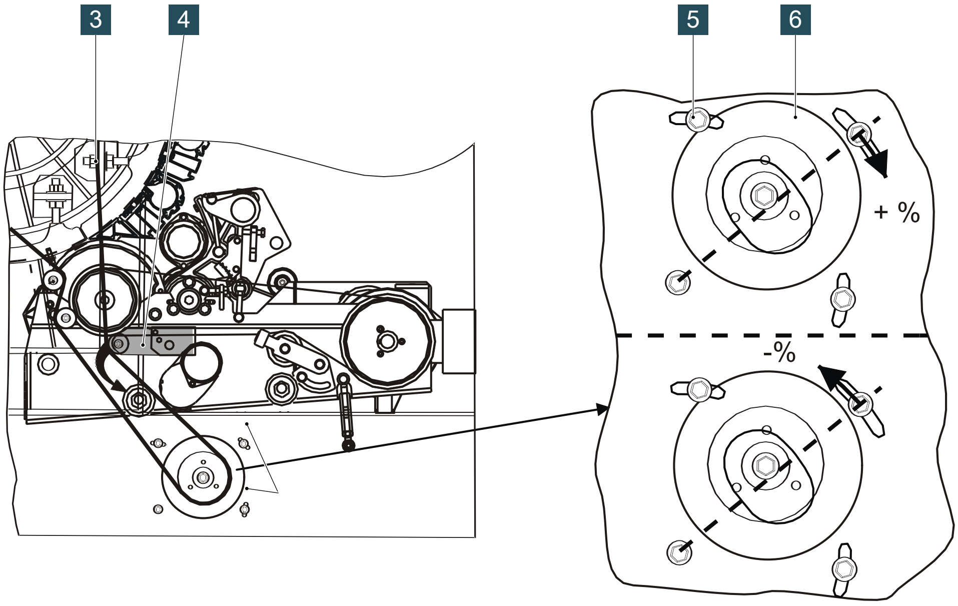


Figure 255: Adjustment of the cylinder belt tension

3. Make sure that the deflection pulley 4 is loosened. See *Applying Tension to the Cylinder Belt ▸ 258*
4. Loosen the screws 5.

   ⇨ The weight of the motor 6 and the belt 3 is slightly pre-tensioned.
5. Tighten the screws 5.
6. Tighten the cylinder belt with the deflection pulley 4.
7. Turn the cylinder minimum 3 turns.

   ⇨ This supplies the tension equally over the belt.
8. Measure the distance 2 between the marks on the cylinder belt 3 refers to the above table.
9. If the distance 2 is too large, correct the position of the motor 6 direction (- %).
10. If the distance 2 is too small, correct the position of the motor 6 direction (+ %).

Result The tension of the cylinder belt is adjusted.

6.4.8 Setting the Card Flats

This section contains the information about how to set the card flats.

6.4.8.1 Setting Values of the Card Flats

This section contains the information about how to adjust the values of the card flats.

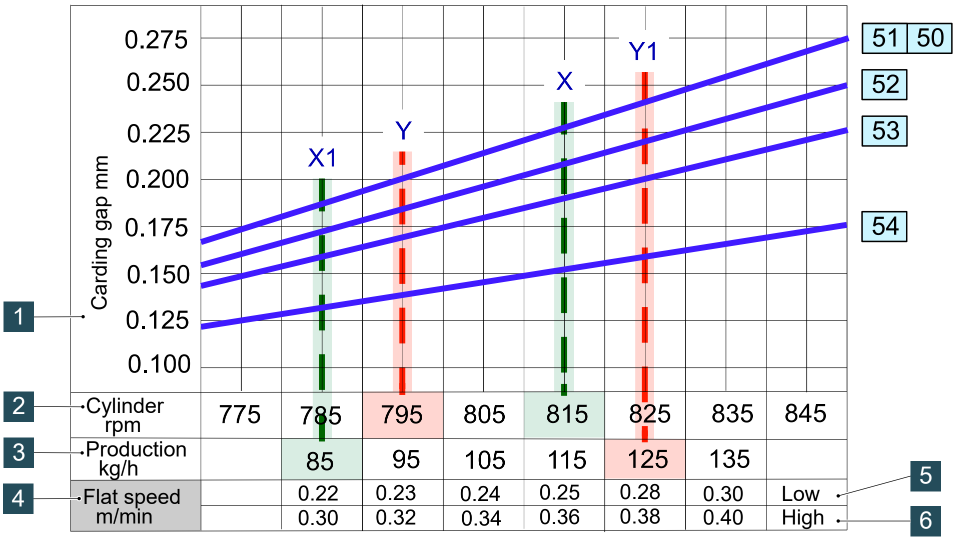


Figure 256: Adjustments values of the card flats

1	Carding gap	2	Cylinder speed
3	Production for each hour	4	Card flat speed

5 Low	6 High

The selection points for the carding gap adjustment are as follows:

- Cylinder speed (rpm)
- Production rate (kg/h)

The parameter that causes the larger card distance, is selected.

- Example X: The cylinder speed X is high but the production rate X1 is low.
    - In this condition, the card flat for the high cylinder speed X is adjusted.
- Example Y: The cylinder speed Y is low but the production rate Y1 is high.
    - In this condition, the card flat for the high production rate Y1 is adjusted.

6.4.8.2 Adjusting the Carding Gap

Increased Carding Gap during the Run-in Phase of New Card Flat Clothing	
Time of the run-in phase: approximate15 t	0.10 mm

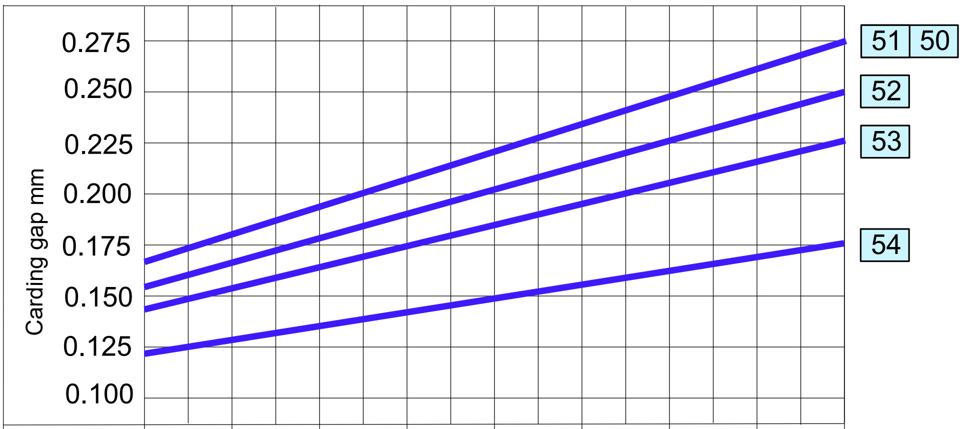
1. Refer to the material to select the applicable setting values from the diagram below.
2. Read the setting values for the 5 points from the diagram.
3. Examine if the installed card flat clothing is new clothing or used clothing.
4. If the card flat clothing was used before, refer to the diagram to do the correct adjustments.
5. Select the correct adjustments through trails, to get the maximum productivity along with quality.
6. If the installed card flats are new, adjust the carding gap during the run-in phase.

   ⇨ After the run-in phase the card flats have to be leveled.
7. Record the adjusted values in the adjustment sheet.

   ⇨ The card flats are set.

Result The correct carding gap is adjusted.

100 % CO / CO% > MMF% / fine rotor yarns, coarse, and fine ring yarns



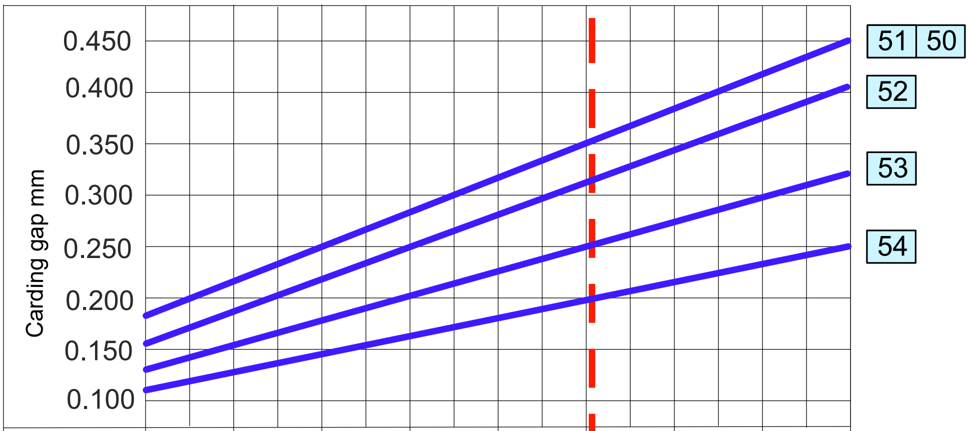
Cylinder rpm	775	785	795	805	815	825	835	845
Production kg/h		85	95	105	115	125	135	
Flat speed m/min	Low	0.22	0.23	0.24	0.25	0.28	0.30	
	High	0.30	0.32	0.34	0.36	0.38	0.40	

Figure 257: Fine rotor yarns

50-54	Larger carding gap during the run-in phase of new card flat clothing	0.05 – 0.10 mm

- 100 % CO = 100 % cotton
- CO % > MMF % = blends in which cotton is more than man-made fiber.

100 % CO / CO% > MMF% / coarse rotor yarns



Cylinder rpm	790	810	830	850	870	890	910	930
Production kg/h		125	155	185	215			
Flat speed m/min	Low	0.20	0.22	0.24	0.26	0.28	0.30	
	High	0.28	0.30	0.32	0.34	0.36	0.38	

Figure 258: Coarse rotor yarns

50 – 54	Larger carding gap during the run-in phase of new card flat clothing	0.05 – 0.10 mm

Combed or carded cotton / fine yarns (card flats default)

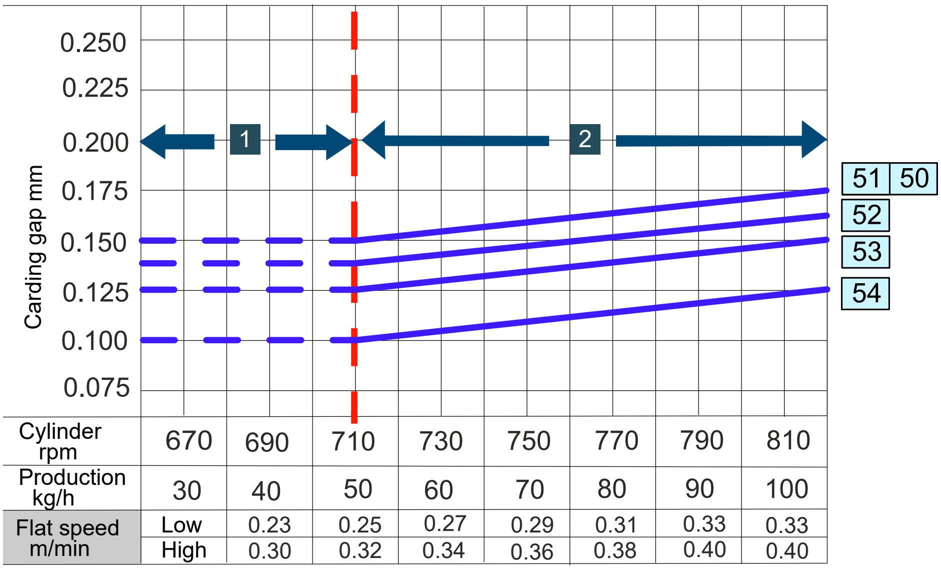
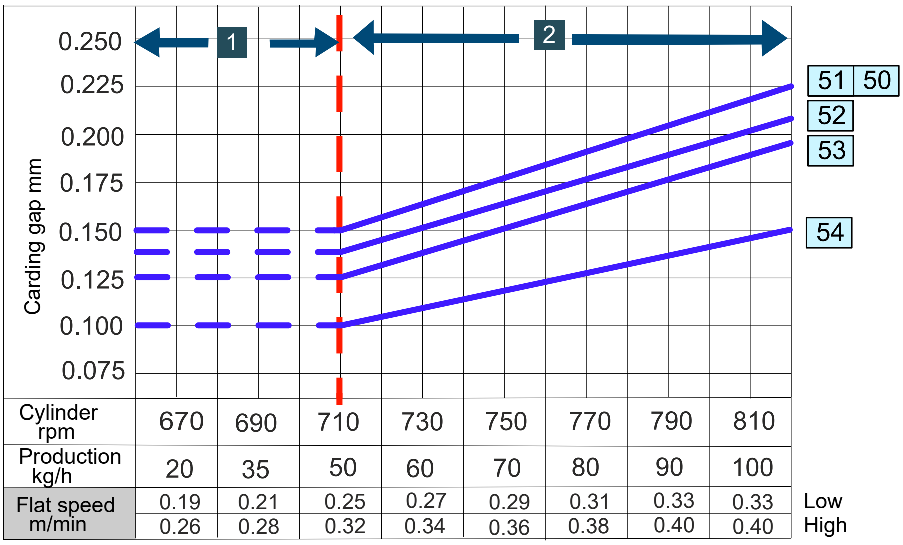


Figure 259: Fine yarns from the combed cotton

50 – 54	Larger carding gap during the run-in phase of new card flat clothing	0.05 – 0.10 mm
1	The range is applicable for long staple	
2	The range is applicable for medium staple	

Combed cotton / very fine yarns (card flats EF)

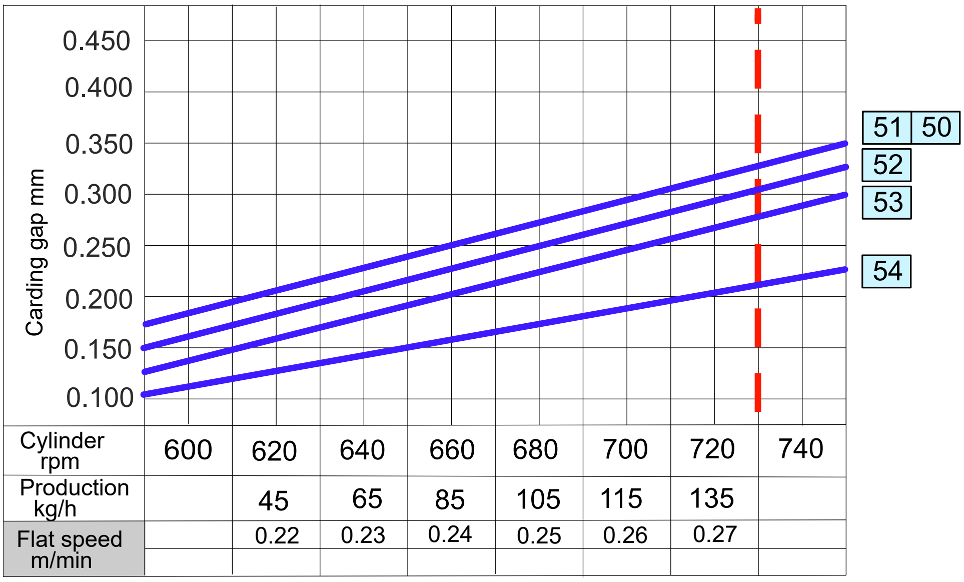


Cylinder rpm	670	690	710	730	750	770	790	810	
Production kg/h	20	35	50	60	70	80	90	100	
Flat speed m/min	0.19	0.21	0.25	0.27	0.29	0.31	0.33	0.33	Low
	0.26	0.28	0.32	0.34	0.36	0.38	0.40	0.40	High

Figure 260: Very fine yarns from the combed cotton

50 - 54	Larger carding gap during the run-in phase of new card flat clothing	0.05 – 0.10 mm
1	The range is applicable for long staple.	
2	The range is applicable for medium staple.	

100 % MMF / MMF% > CO%



Cylinder rpm	600	620	640	660	680	700	720	740
Production kg/h		45	65	85	105	115	135	
Flat speed m/min		0.22	0.23	0.24	0.25	0.26	0.27	

Figure 261: 100 % Man–made fibers

– 100 % MMF = 100 % man-made fibers

– MMF% > CO% = blend in which the man-made fiber is more than the cotton.

50 – 54	Larger carding gap during the run-in phase of new card flat clothing	0.05 – 0.10 mm

6.4.8.3 Adjusting the Card Flat Speed

Card flat speed	0.20 – 0.40 m/min

1. To select the speed of the card flat, refer to the material and the production rate from the diagram. Refer to Entering the Card Flat Speed.
2. Enter the card flat speed in the data screen 10.1 **10 Production set values**.
   ⇨ The card flat speed agrees with the material.

Result The card flat speed is adjusted.

6.4.8.4 Moving the Card Flats to Do the Adjustment

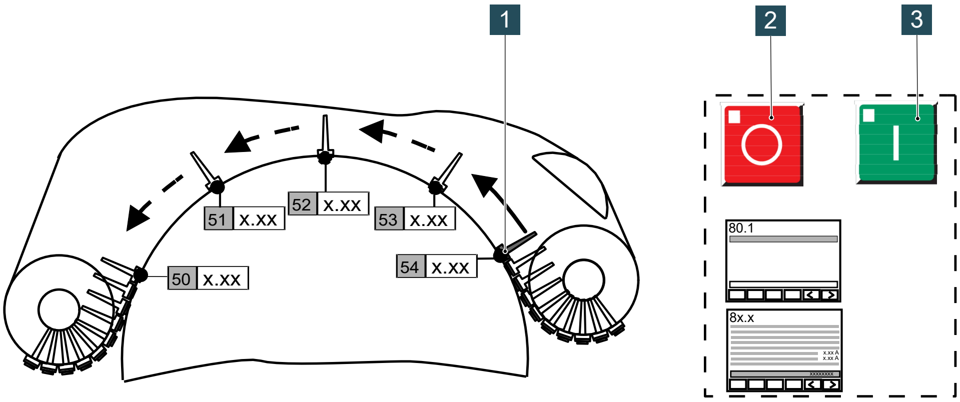


Figure 262: Card flats

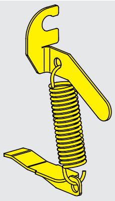
1. Select the operating mode **Service mode** in the data screen 80.1.
2. Select the data screen 81.3.
3. Select the mode in the field **Carry out servicing** as **Flat measurement**.
   ⇨ The measurement mode starts.
4. Tap and hold the start button 3, until the card flat is at the measuring point 1.
   ⇨ The card flat is at the measuring point 1.
   ⇨ The first card flat is set.
5. Tap the stop button 2.
6. After a small time interval, tap the stop button 2 the start button 3 at the same time.
   ⇨ The measurement mode is in operation.
   ⇨ The message **Carding gap measurement, position 1** is shown.

7. Push the start button 3.
   - ⇨ The card flat that is set before is moved to the next measuring point and then stops automatically.
   - ⇨ The message **Carding gap measurement, position 2** is shown.
8. Set all card flats with the same procedure.
9. Push the stop button 2.
   - ⇨ The measurement mode is stopped.

Result The card flats are moved to do the adjustment.

6.4.8.5 Measuring the Carding Gap

Orientation For a correct measurement result, the load spring for the card flats must be used. Make sure that the card flats are always pushed onto the flexible bend with the same force.

	Load spring	The load spring is used to push the card flats onto the flexible bends.

Prerequisites Make sure that the criteria are obeyed:

✓ The load spring for a card flat is to be used.

NOTICE

Card flats touches the cylinder clothing!

Clothing damage

- ▶ Only do the measurements of the card flats with the load spring.
- ▶ Obey the instructions for adjustment of the card flats.

1. Put the part 3 of the load spring 2 into the measurement slot.

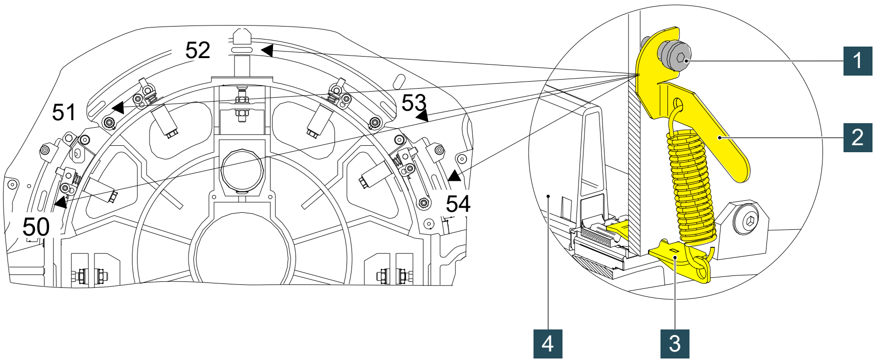


Figure 263: Measurement of the carding gap

2. Put the load spring 2 on the screw 1.

   ⇨ The load spring is installed at the contact surface of the card flat 4.

3. Put the card gauge between the card flat and the cylinder at the measuring points 50, 51, 52, 53 and 54.
4. Hold the card gauge.
5. Move the card gauge rearward and forward.
6. Analysis the resistance of the card gauge between the card flat clothing and the cylinder clothing.
7. Measure the carding gap at the top most measuring point at different cylinder positons.
8. Find the position of the cylinder where the carding gap is smallest.
9. Identify the position of the cylinder with a marker pen.

   ⇨ The closet point of cylinder is found.

10. To adjust the card flats, turn the cylinder to align the mark of the closest point to the measuring point.

Result The carding gap is measured.

6.4.8.6 Finding the Nearest Point to the Card Flat

Orientation This section contains the information about how to find the closest point of the card flat at the cylinder.

The carding gap adjustment is done at the cylinder closest point to the card flat. The roundness of the cylinder is in a tolerance range. The area of the cylinder clothing is closer to the card flat clothing than the other areas of the cylinder clothing.

1. Measure the carding gap at measurement point 52 on 2 sides of the machine.
2. Turn the cylinder about 20 degrees by hand.
3. Measure the carding gap at the measurement point 52 again on 2 sides of the machine.
4. Do the procedures 1 and 2 until find the position of the cylinder where the carding gap is the smallest.
5. Identify the position at the cylinder with a marker pen.

Result The closest point to the card flat is found.

6.4.8.7 Selecting the Reference Card Flat

Orientation The reference card flat is the card flat that is closest to the cylinder clothing. The smaller the carding gap (fine spinning) the more important it is to do the adjustment only with the reference card flat. Finding the closest card flat makes sure that the damage to the card flat clothing does not occur.

1. For the fine spinners, measure all the card flats at 1 measuring point to find the reference card flat.
2. For the coarse spinners, measure 20 pieces of card flats at 1 measuring point to find the reference card flat.
3. Mark the reference card flat with a marker pen.

Result The reference card flat is selected.

6.4.8.8 Adjustment Mechanism of the Card Flats

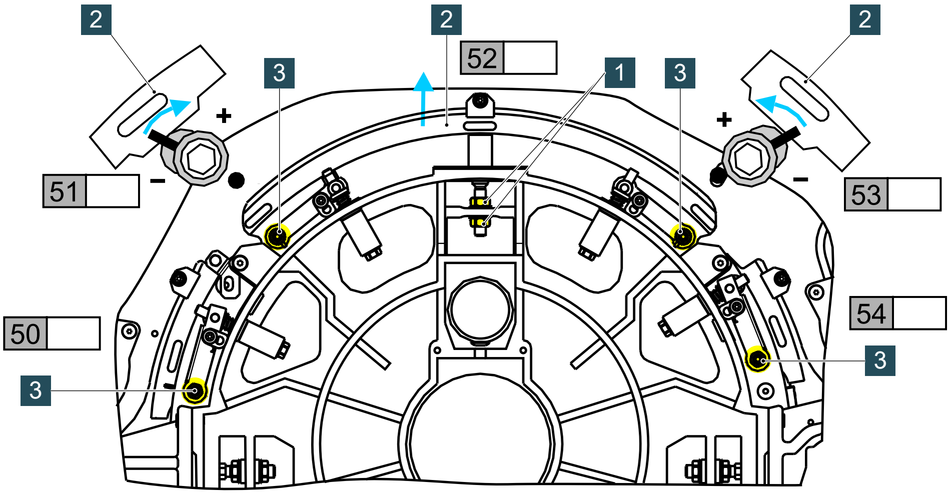


Figure 264: Adjustment mechanism of the card flats

Orientation The adjustment mechanism for different adjustment points is different.

The top adjustment point 52 attaches the flexible bend 2 with lock nuts. The lower 4 adjustment points 50, 51, 53 and 54 are attached with an eccentric adjusting element. These 4 eccentric adjusting elements support the flexible bend 2 from the inner side.

Eccentric Adjustment

The eccentric adjusting element 3 is used for the rough adjustment. The screw 9 is used for the fine adjustment.

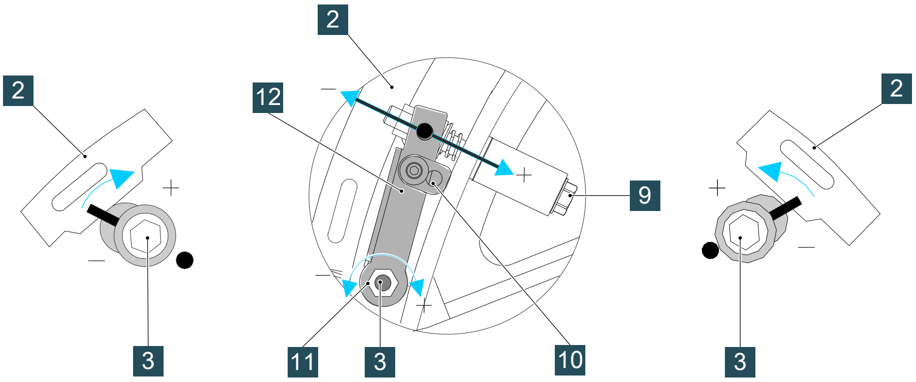


Figure 265: The eccentric adjustment

Rough adjustment

1. Fit on the strap 10.
   - ⇨ The lever 12 of the fine adjustment mechanism is positioned.
2. Loosen the nut 11 by 1/4 turn.
   - ⇨ The eccentric adjusting element 3 can turned.
3. Do the rough adjustment on the eccentric adjusting element 3.
   - ⇨ Direction of turn + the carding gap becomes larger.
   - ⇨ Direction of rotation - the carding gap becomes smaller.
4. Tighten the nut 11 by ¼ turn.
   - ⇨ The nut 11 is fitted with plate springs. This prevents the adjustment eccentric from becoming missing adjusted through tightening.
   - ⇨ Through this measure, counter lifting of the adjustment eccentric when tightening the nut is not necessary.
   - ⇨ The rough adjustment is done.

Fine adjustment

1. Tighten the nut 11 firmly.
   - ⇨ The adjustment eccentric can be precisely adjusted indirectly though the lever 12.
2. Move up the strap 10.
   - ⇨ The lever 12 can be adjusted.
3. Do the fine adjustment with the screw 9.
   - ⇨ The fine adjustment is done.

Result The adjustment mechanism of the card flats is done.

6.4.8.9 Adjusting the Card Flats

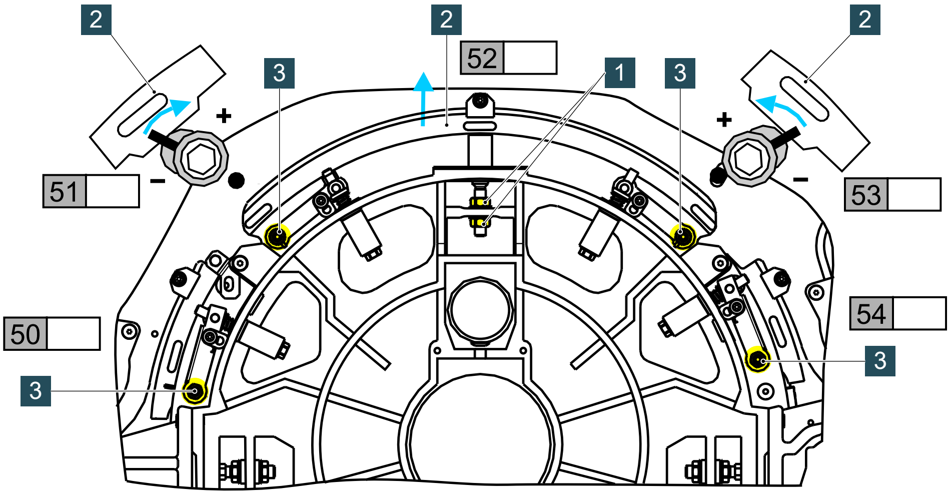


Figure 266: Adjustment of the card flats

Prerequisites Make sure that the criteria are obeyed:

- ✓ The closest point to flat at the cylinder is found.
- ✓ The reference card flat is found.

NOTICE

Card flats touch the cylinder!

Clothing damage

▶ Set the new card flat 0.05 to 0.10 mm higher than the basic value.

1. Turn the cylinder until the closest point aligns with the measuring point that is to be adjusted.
2. Move the card flats until the reference card flat aligns with the measuring point that is to be adjusted.

Rough Adjustment Procedure

1. Turn the eccentric adjusting elements 3 at the measuring point 51 and 53 in the (-) direction.

   ⇨ The eccentric adjusting elements are off-loaded from the flexible bend 2.
2. Adjust the carding gaps at the measuring points 50 and 54 with the eccentric adjusting elements 3.
3. Adjust the carding gap at the measuring point 52 with the nuts 1.
4. Make sure that the carding gaps at the measuring points 50, 52 and 54 are in tolerance +/- 0.05 mm.
5. Measure the carding gaps at the measuring points 51 and 53.

6. Adjust the narrower one of the carding gaps 51 and 53.
7. Adjust the other one of the carding gaps 51 and 53.
8. Measure carding gaps at all measuring points.
9. If all 5 measuring points are in the tolerance limit +/- 0.05 mm, tighten the eccentric adjusting element 3 with the tightening torque of 20 Nm.
10. Do the rough adjustment procedure on the other side of the machine.

    ⇨ The rough adjustment procedure is done.

Fine Adjustment Procedure

1. Move the reference card flat to the adjustment point 54. See *Moving the Card Flats to Do the Adjustment ▶ 265*
2. Adjust the carding gap at the measuring point 54.
3. Do the fine adjustment at the measuring point 54 on the other side of the machine.
4. Do the same procedure for the other 4 measuring points 53, 52, 51 and 50.

    ⇨ The fine adjustment procedure is done.

Examining the Carding Gap

1. Measure the carding gap as the fine adjustment procedure. See *Measuring the Carding Gap ▶ 266*

    ⇨ If all that the 5 adjustment points 54, 53, 52, 51 and 50 are in tolerance +/- 0.02 mm, the adjustment is correct.

2. If all that the 5 adjustment points 54, 53, 52, 51 and 50 are not in tolerance +/- 0.02 mm, do the fine adjustment procedure again.

Result The card flats are adjusted.

6.4.8.10 Adjusting the Deflection Elements of the Card Flats

1. Adjust the distance between the card flat 1 and the flexible bend 3.

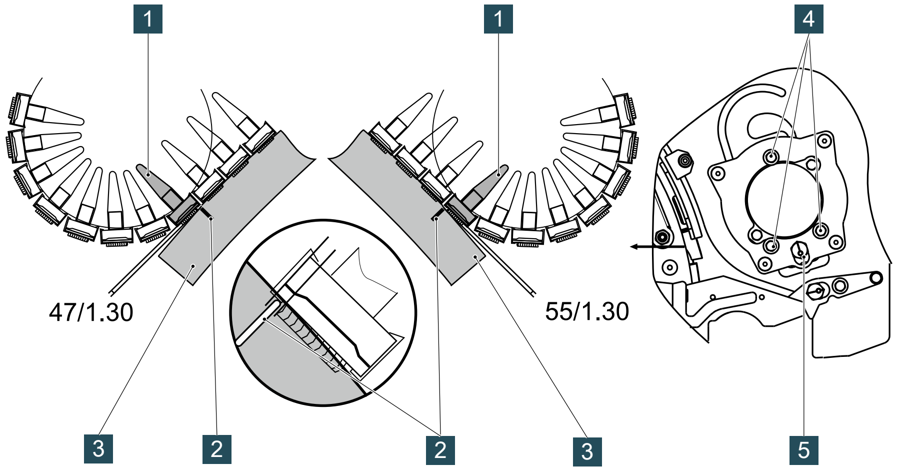


Figure 267: Adjustment between the card flat and the flexible bend

2. Put the start or the end of the card flat 1 accurately on the mark 2 of the flexible bend 3.
3. Loosen the screws 4.
4. Set the adjustment points 47 and 55 with the eccentric 5.
5. Tighten the screws 4.

Result The movement elements of the card flats are adjusted.

6.4.8.11 Moving the Card Flats Backward

1. Enter the password in the level 2.
2. Select the mode **Service mode** in the data screen 80.1.
3. Select the data screen 81.3.
4. Select the operation as **Flat reversal** in the mode **Carry out servicing**.
5. Push the start key.

Result The card flats moved backward.

6.4.8.12 Adjusting the Friction Clutch at the Card Flat Drive

Prerequisites Make sure that the criteria are obeyed:

✓ The nut with circumference 6 mm is to be used.

1. Remove the cover 2 to get the access to the groove nut 1.

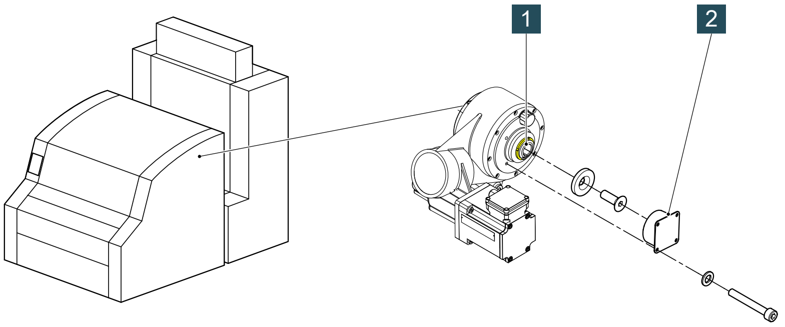


Figure 268: Adjustment of the friction clutch on the card flat drive

2. To increase the tightening torque, turn the groove nut 1 clockwise.
   - ⇨ Approximately 20 Nm tightening torque of the friction clutch is increased.
3. To decrease the tightening torque, turn the groove nut 1 counterclockwise.
   - ⇨ Approximately 20 Nm tightening torque of the friction clutch is decreased.

Result The friction clutch at the card flat drive is adjusted.

6.4.8.13 Adjusting the Cleaning Unit

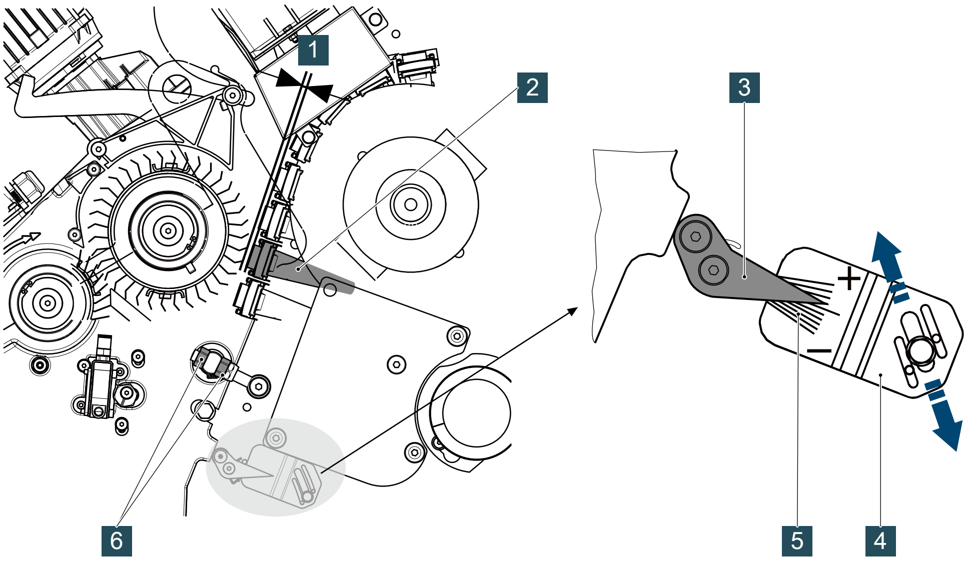
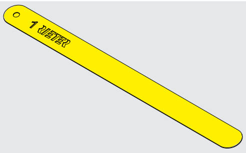


Figure 269: Cleaning unit

	1 mm gauge	The 1 mm gauge is used to set the gap between the clothing of flat rod and the clothing of clearer roller PW1.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- ✓ The 1 mm gauge is to be used.

1. Make sure that the card flat 2 for the measurement is set opposite of the cleaning roller.
2. Loosen the nuts 6.
3. To set the distance 1 to 1 mm, turn the nuts 6.
4. Measure the distance 1 with the 1 mm gauge.
5. Do the adjustment again until the distance 1 is 1 mm.
6. Tighten the nuts 6.
7. Examine the display 5.
8. If the display 5 does not agree with the distance 1, move the scale 4 on the 2 sides of the machine until the pin 3 points to the line +1 mm.

Result The cleaning unit is adjusted.

6.4.8.14 Setting the Immersion Depth of the Clearer Roller PW1

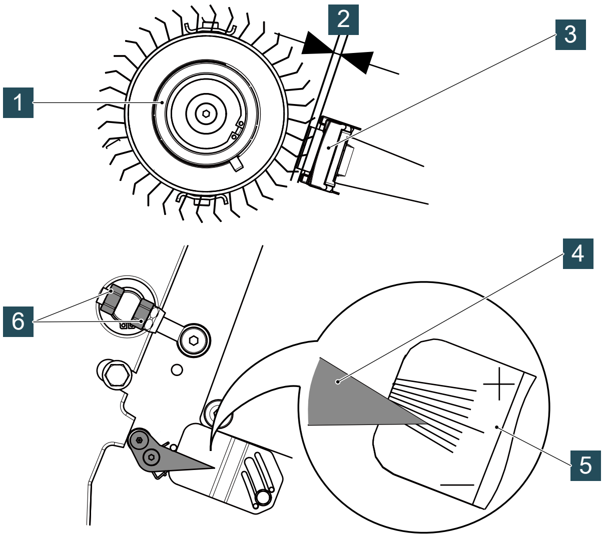


Figure 270: Adjusting the penetration depth PW1

Penetration depth 1	≤ -2.50 mm
Default value	-1.50 mm

Prerequisites Make sure that the criteria are obeyed:

✓ The cleaning unit is adjusted.

1. To adjust the penetration depth 2, use the nuts 6.
2. Make sure that the pointer 4 shows the value of the penetration depth 2 on the scale 5.

   ⇨ The needles of the clearer roller PW1 1 go into the card flat 3.

Result The immersion depth of the clearer roller PW1 is set.

6.4.8.15 Adjusting the Cleaning Brush to the Sliding Surface of the Card Flats

Adjustment Point 73	
Distance 3	2.00 mm

1. Move a card flat 4 accurately below the brush 6.

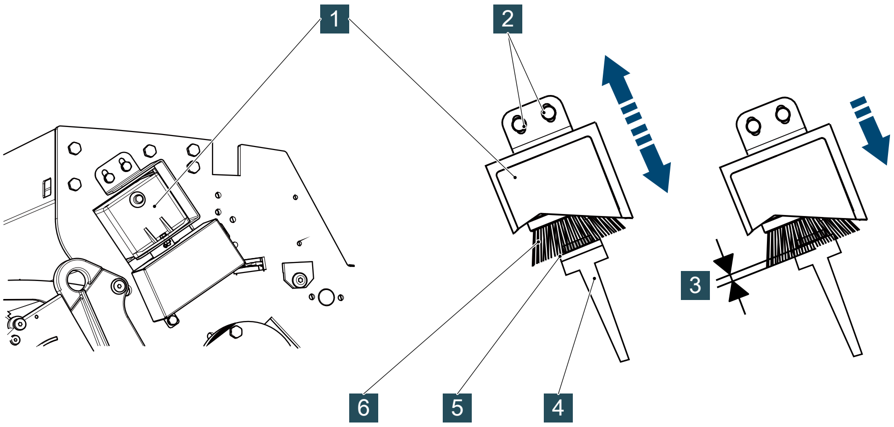


Figure 271: Cleaning brush of card flat

2. Loosen the screws 2.
3. Move the gear unit 1 until the brush 6 touches the sliding surface 5 of the card flat 1.
4. From the sliding surface 5, move the gear unit 1 more by the specified distance 3.

Examining the Horizontal Position of the Brush

1. Examine the distance 8 between card flat clothing 7 and the brush 6.

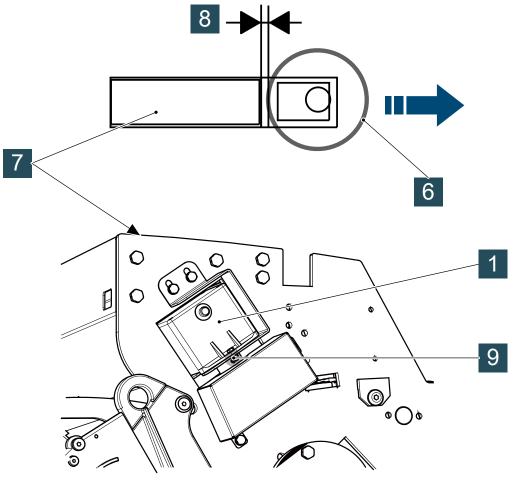


Figure 272: Examining the horizontal position of the brush

⇨ If the distance 8 is ≥2 mm, the brush is set correctly.

2. If the distance 8 is < 2 mm, do the steps that follow.
3. Remove the gear unit 1.
4. Loosen the screws 9.
5. Move the brush 6 outer in the direction of the arrow.
6. Tighten the screws 9.
7. If the distance 8 is < 2 mm, and the bristles are damaged, replace the brush 6.

Result The cleaning brush to the sliding surface of the card flats is adjusted.

6.4.9 Adjusting the Doffer

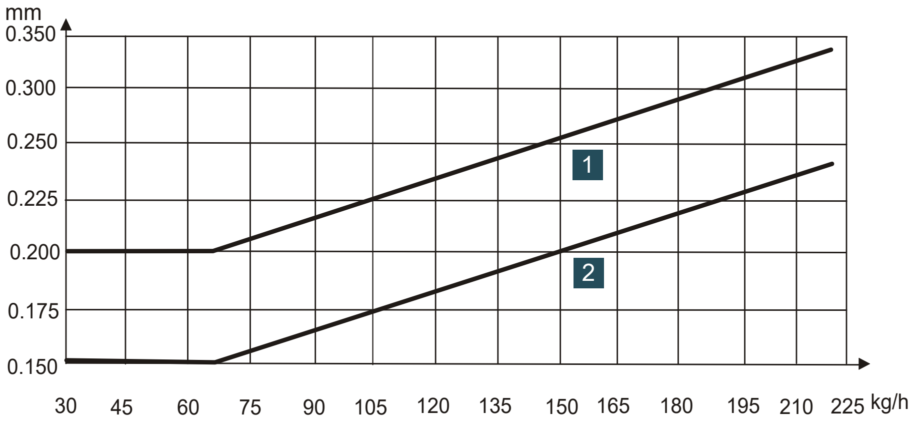


Figure 273: The doffer graph

1	For the cold machine	2	For the warm machine

Distance of the Cylinder and the Doffer (Machine Cold) (81)	
Production for each hour: > 70	0.20 mm
Production for each hour: 70 - 105	0.225 mm
Production for each hour: 105 - 150	0.250 mm
Production for each hour: 150 - 190	0.275 mm
Production for each hour: > 190	0.300 mm

Distance of the Cylinder and the Doffer (Machine Warm) (81)	
Production for each hour: > 70	0.15 mm
Production for each hour: 70 - 105	0.175 mm
Production for each hour: 105 - 150	0.20 mm
Production for each hour: 150 - 190	0.225 mm
Production for each hour: > 190	0.250 mm

1. Remove the cover of the doffer.

2. Remove the carding profile of the cylinder.

   ⇨ A simple check is carried out on 2 sides at 1.

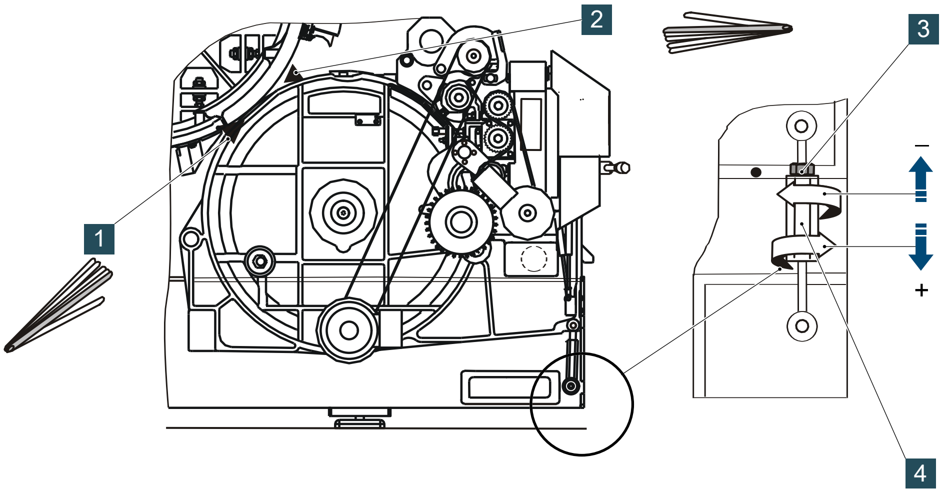


Figure 274: Adjustment of the distance between cylinder and doffer

Increasing the Distance between the Cylinder and the Doffer (+)

1. Loosen the nut 3.
2. To move down the doffer, turn the nut 4 counterclockwise.
3. Tighten the nut 3.
4. Examine the adjustment again.
5. Change the adjustment on the 2 sides and over the full width of the doffer.

   ⇨ The distance between the cylinder and the doffer is increased.

Decreasing the Distance between the Cylinder and the Doffer (-)

1. Loosen the nut 3.
2. To move up the doffer, turn the nut 4 clockwise direction as shown in the figure.

   ⇨ The changes must be always to be carried out on 2 sides.
3. Tighten the nut 3.
4. Examine the adjustment again.

   ⇨ The check must be carried out over the full width of the doffer.

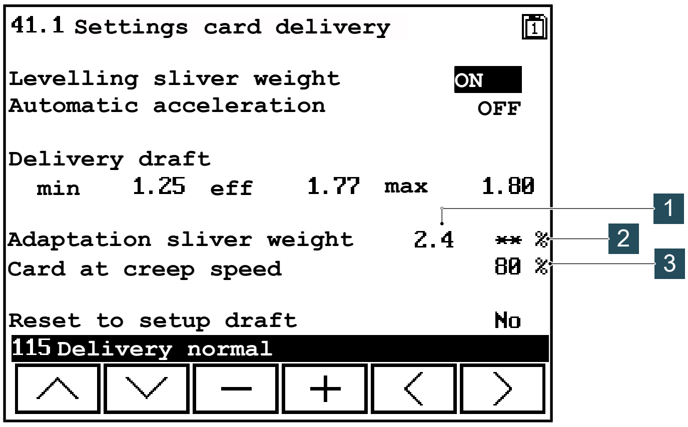
   ⇨ The distance between the cylinder and the doffer is decreased.
5. Measure the distance between the cylinder and the doffer at the points 1 and 2 refer to the above table.
6. Make sure that the distance between the cylinder and the doffer is correct.

Result The doffer is adjusted.

6.4.10 Setting the Delivery Unit

This section contains the information about how to set the delivery unit.

6.4.10.1 Adjusting the Sliver Weight in the Slow Speed



```
41.1 Settings card delivery

Levelling sliver weight           ON
Automatic acceleration           OFF

Delivery draft
  min    1.25  eff    1.77  max   1.80

Adaptation sliver weight    2.4   ** %
Card at creep speed               80 %

Reset to setup draft              No
115 Delivery normal
```

Figure 275: Data screen 41.1

1	Compensation factor of loss of material	2	Suggested compensation factor of sliver weight at creep speed
3	Set compensation factor		

Prerequisites Make sure that the criteria are obeyed:

✓ The sliver weight is corrected. See *Correcting the Sliver Weight ▸ 344*

1. Operate the card at the fast speed for minimum 15 minutes.
2. Operate the card at low speed.
3. Wait until the suggested compensation factor of sliver weight at creep speed 2 calms down.
4. Set the value of **Card at creep speed** to the suggested compensation factor 2.
5. Wait until the suggested compensation factor 2 calms down.
6. If the difference between the suggested compensation factor and the set value is larger than 5%, repeat the procedure.

Result The sliver weight is adjusted in the slow speed.

6.4.10.2 Setting the Draft for the Delivery Rollers and the Take-Off Roller

Orientation To make the draft ratios better, refer to the delivery speed and the raw material. The controller calculates the output draft (VA3) for the set delivery speed.

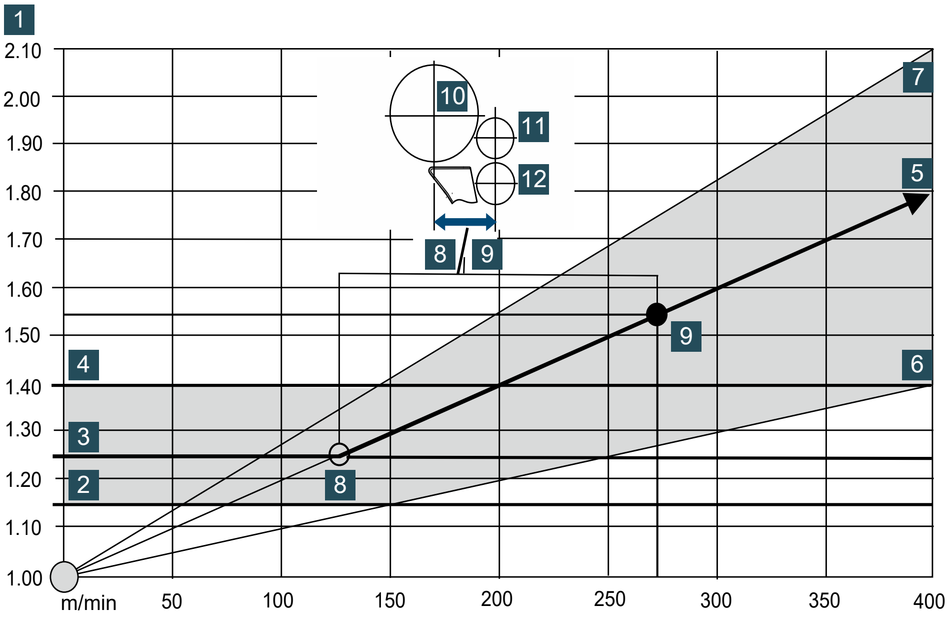


Figure 276: Selection of the draft for the coiler

1	Drafting zone between the take-off roller and the delivery rollers (maximum 2.40).	2	Minimum adjustable draft at the low delivery speed
3	Set draft at the low delivery speed. (Data screen 41.1 Output draft min.)	4	Maximum adjustable draft at the low delivery speed
5	Set draft at the high delivery speed. (Data screen 41.1 Output draft min.)	6	Minimum adjustable draft at the high delivery speed
7	Maximum adjustable draft at the high delivery speed	8	The draft in the intersection of the set draft at the low delivery speed to set the draft at the high speed. The draft increases with a higher delivery speed starting at the intersection point.
9	Calculated, correct draft between the take-off roller and the delivery rollers because of the set drafts minimum / maximum (data screen 41.1 output draft)	10	Take-off roller
11	Delivery roller	12	Delivery roller

Delivery draft in the data screen 41.1	
Draft: **min**	1.15 – 1.4 Draft at slow speed
Draft: **max**	1.4 – 2.4 Draft at high speed
Draft: **eff**	Draft at set speed

WARNING

Moving parts!

Injury because of moving machine parts

- ▶ Do NOT touch the moving parts.
- ▶ Stay away from the moving parts.

1. **WARNING! Moving parts! Injuries because of moving machine parts.** Open the left side door of the delivery unit.
2. Start the production with the doffer at the slow speed. See Starting the Production of the Doffer in the Slow Speed
3. Examine the web on the web bridge with a flashlight.
4. If the web makes a small wave or large wave, decrease the draft in the field **min** in the data screen 41.1 **Settings card delivery** .
5. Start the production with the doffer at the high speed. See Starting the Production (Doffer at the High Speed)
6. Examine the web on the web bridge with a flashlight.
7. Entry the password for password level 2.
8. If the web has large wave, increase the draft in the field **max** in the data screen 41.1 **Settings card delivery**.
9. If the web does not have a wave, decrease the draft **max** in the data screen 41.1 **Settings card delivery**.

Result The draft for the delivery rollers and the take-off roller is set.

6.4.10.3 Replacing the Stripping Blades

Orientation This section contains the information about how to replace the stripping blade.

Removing the Stripping Blades

1. Examine the stripping blades for wear.
2. If the stripping blades 2 are worn out, replace the stripping blade.

   ⇨ The stripping blades are removed.

Installing the Stripping Blades

1. Loosen the adjustment collar 1.

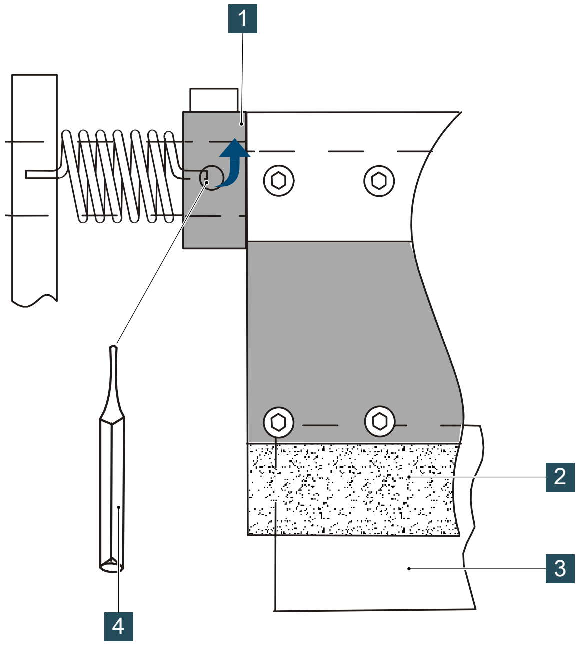


Figure 277: Adjustment of the contact pressure of the stripping blades

2. Put the stripping blades 2 on the bottom delivery roller or top delivery roller 3.
3. Make the adjustments left side and right side.
4. Turn the adjustment collar 1 approximately of a 1/8 turn with the correct tool 4.
5. Tighten the adjustment collar 1 again.
   - ⇨ The stripping blades 2 are pushed onto the delivery roller 3 with a light pressure.
   - ⇨ The stripping blades are installed.

Result The stripping blades are replaced.

6.4.10.4 Adjusting the Rollers of the Doffing Device

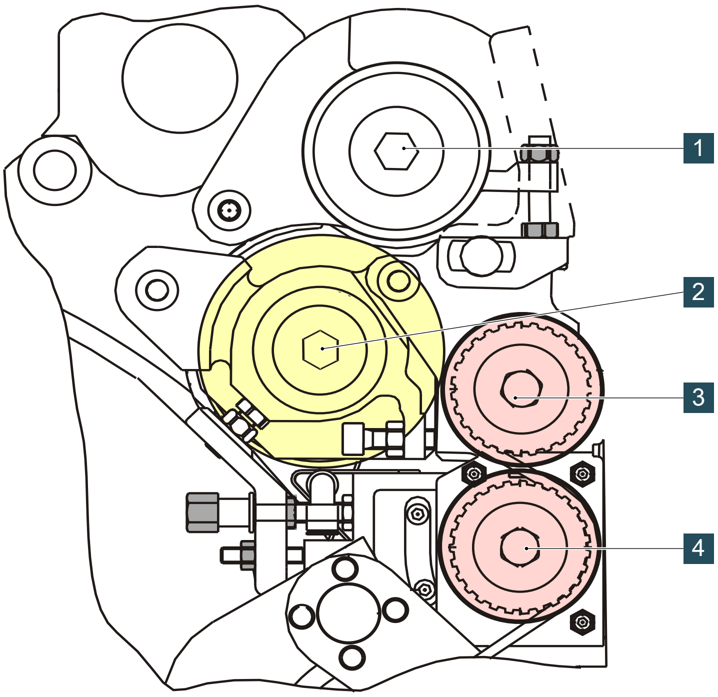


Figure 278: Adjustment of the roller

1. Adjust the take-off roller 2.
2. Adjust the top delivery roller 3.
3. Adjust the lower delivery roller 4.
4. Adjust the clearer roller 1.
5. Do the adjustment on the 2 sides.

Result The rollers of the doffer device are adjusted.

6.4.10.5 Adjusting the Take-off Roller

1. Adjust the take-off roller 1 to the height of the doffer clothing.

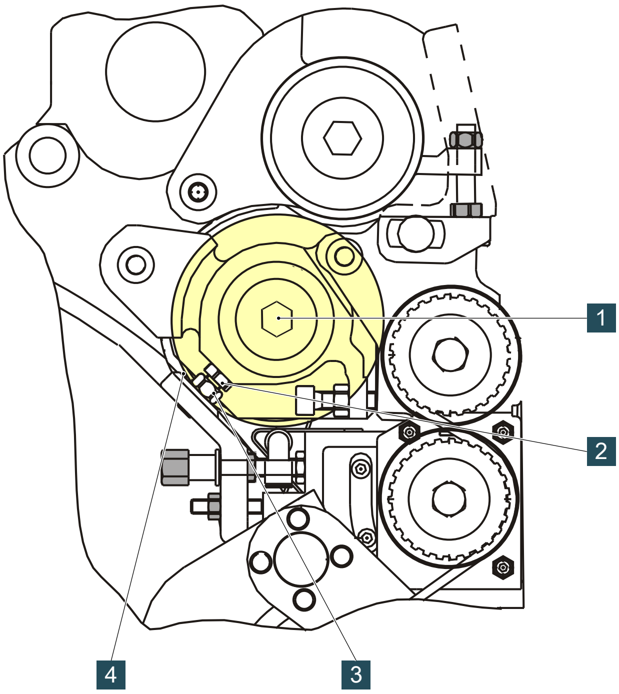


Figure 279: Take-off roller

2. Loosen the lock nuts 3.
3. Set the distance 4, between the doffer and the take-off roller to 0.225 mm with the adjusting screw 2.

Result The take-off roller is adjusted.

6.4.10.6 Adjusting the Delivery Rollers

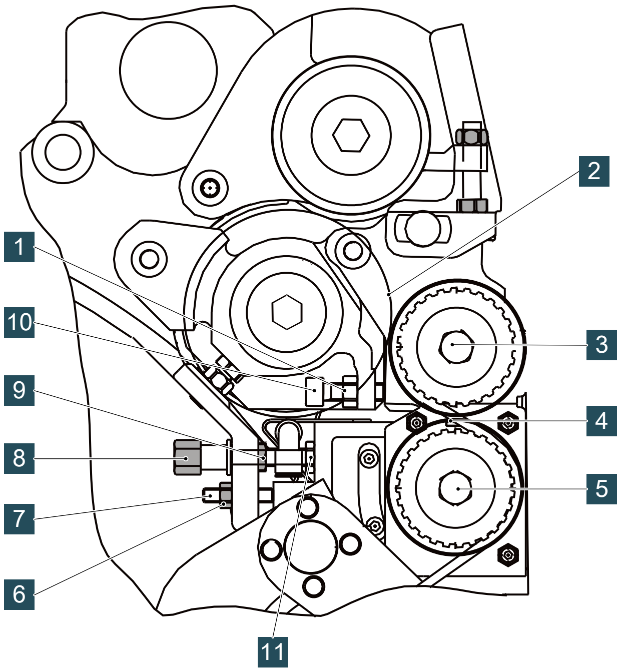


Figure 280: Delivery rollers

Setting the Top Delivery Roller

1. Loosen the nut 1.
2. Use the adjustment screw 10 to set the distance 0.15 mm at check point 2.
3. Tighten the nut 1.

   ⇨ The top delivery roller 3 is set.

Setting the Bottom Delivery Roller

1. Loosen the nut 6.
2. Unscrew the stud screw 7 far enough that during the adjustment procedure it no longer rests on the bearing lever.
3. Do not unscrew the nut 11.
4. Set the distance 4 to 0.5 mm with the special nut 8 and the nut 9.
5. Tighten the nut 8 and the nut 9 against each other.
6. Examine the adjustment on the full width of bottom delivery roller.
7. Put the screw 7 on the bearing lever.
8. Tighten the nut 6.

   ⇨ The bottom delivery roller 5 is set.

Result The delivery rollers are adjusted.

6.4.10.7 Adjusting the Clearer Roller

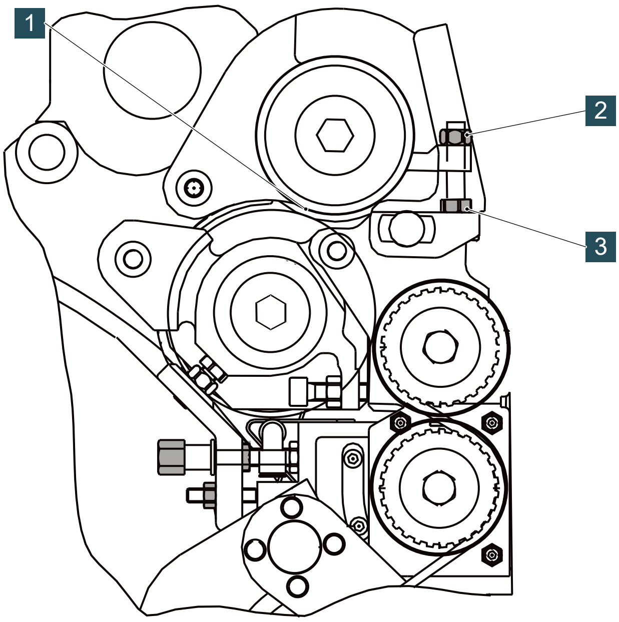


Figure 281: Clearer roller adjustment

1. Loosen the lock nuts 2.
2. Set the distance 1 to 0.1 mm with the adjusting screw 3.

Result The clearer roller is adjusted.

6.4.10.8 Adjusting the Web Bridge

Prerequisites Make sure that the criteria are obeyed:

✓ The take-off roller is adjusted to the height of the doffer clothing.

1. Remove the connection of the suction channel 8.

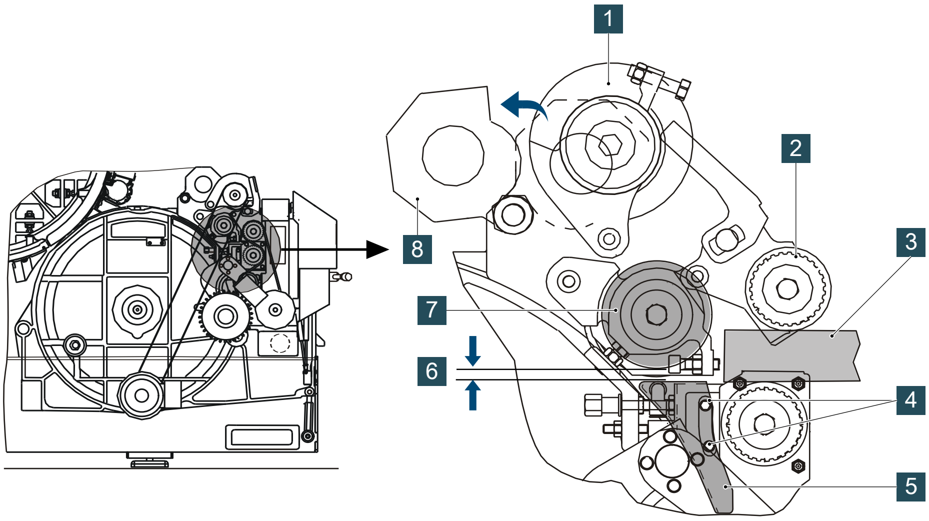


Figure 282: Adjustment of the web bridge

2. Move the suction channel 8 to the rear until the suction channel 8 touches to the cover.
3. Remove the drive belts of the clearer roller 1 and the delivery roller 2.
4. Move the cleaning brush to the back.
5. Lift the top delivery roller 2.
6. Put the top delivery roller 2 on the 2 wooden blocks 3 at the left side and the right side.
7. Loosen the screw 4.
8. Set the distance 6 between the take-off roller 7 and the web bridge 5 to 2.6 mm.
9. Tighten the screw 4.
10. Make sure that the set distance 2.6 mm is same for the full width.
11. Remove the wooden blocks 3.
12. Move the delivery roller back to the initial position.
13. Examine the distance between the delivery rollers 2.
14. Put the clearer roller 1 and the suction channel 8 to the initial position.

Result The web bridge is adjusted.

6.4.10.9 Adjusting the Distance between the Delivery Rollers and the Cross Apron

Orientation This section contains the information about how to adjust the distance between the delivery rollers and the cross apron.

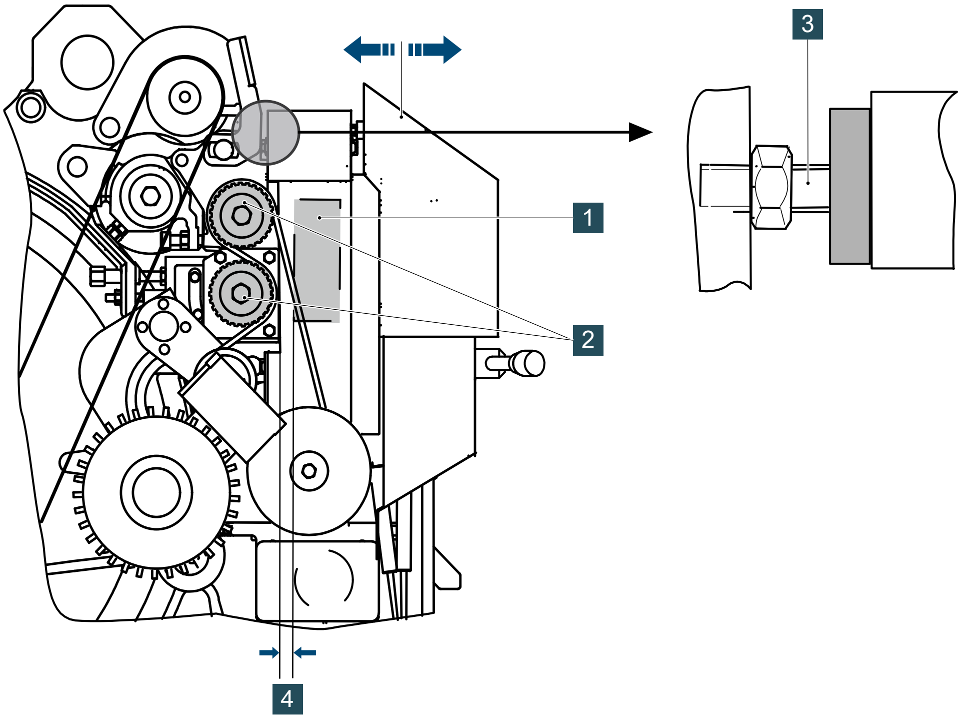


Figure 283: Distance between the delivery rollers and the cross apron

1. Make sure that the bands 1 of the cross apron must be parallel to the delivery rollers 2.
2. To set the distance 4 between the delivery rollers 2 and the bands 1 of the cross apron to 3.0 mm, use the rubber buffer 3.
   ⇨ The above setting can deviate from the standard setting depending on the material and the delivery speed.

Result The distance between the delivery rollers and the cross apron is adjusted.

6.4.10.10 Adjusting the Distance between the Cross Apron Unit and the Calender Roller Unit

Orientation This section contains the information about how to adjust the distance of the cross apron and disk roller support.

1. Adjust the distance between the delivery rollers and the cross apron 1.

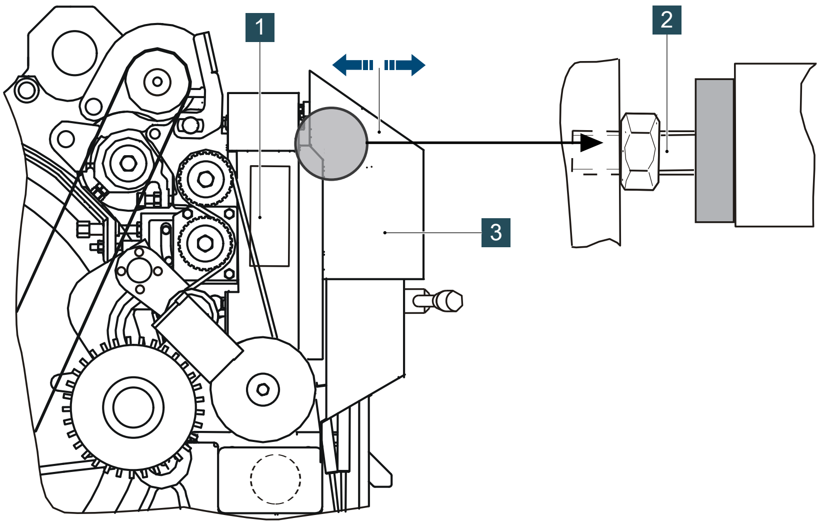


Figure 284: Adjustment of the distance between the cross apron and the disk roller

2. Adjust the disk roller support 3 vertically with the rubber buffer 2. Refer to Adjusting the Disk Roller Support.
3. Make sure that the disk roller support 3 does not extend more than the cross apron support 1.

Result The distance of the cross apron is adjusted.

6.4.10.11 Adjusting the Suction Unit of the Calender Rollers

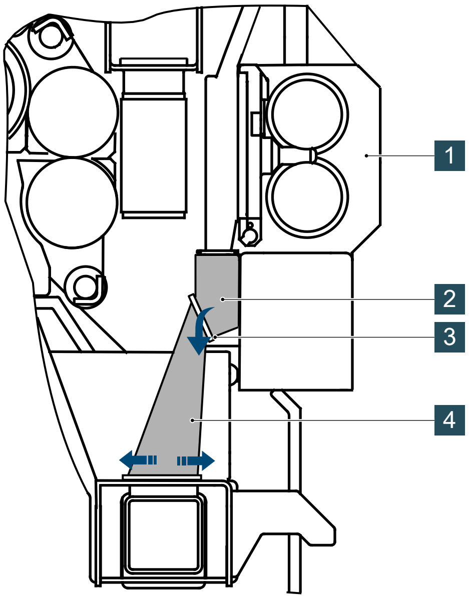


Figure 285: Suction tube

1. Adjust the disk roller support 1.

2. Adjust the distance between cross apron and disk roller support. See *Adjusting the Distance between the Cross Apron Unit and the Calender Roller Unit ▸ 287*.
3. Loosen the screws of the suction tube 4.
4. Adjust the position of the suction tube 4.
5. Make sure that the rubber seal 3 connect with the suction unit housing 2 of the disk roller support 1.
6. The positions of the disk roller support 1 not changed in the procedure.

Result The suction unit of the calender rollers is adjusted.

6.4.10.12 Adjusting the Distance between the Cross Aprons

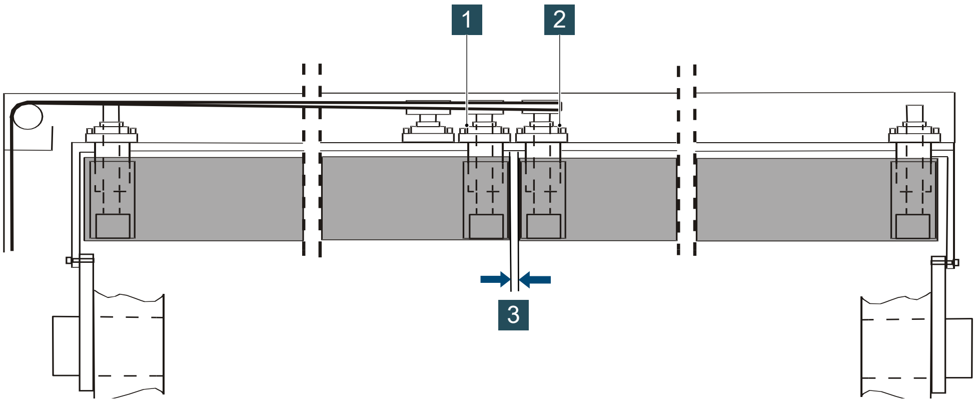


Figure 286: Adjustment of the distance between the cross aprons

Distance between the cross aprons	
Distance 3	13.0 mm
Distance 3	18.0 mm
Distance 3	23.0 mm

1. Adapt the distance 3 between the cross apron to the outflowing material.
2. Turn the deflection pulleys 1 and 2 to the 180°.
   ⇨ The distance 3 is adapted to the material.

Result The distance between the cross aprons is adjusted.

6.4.10.13 Adjusting the Sliver Compression

The card sliver is compressed by disk rollers or step rollers. Step rollers are preferred for the compression of the voluminous material. The material is better compressed with the step rollers.

6.4.10.14 Adjusting the Disk Rollers

1. Measure the distance 1 between the disk rollers.

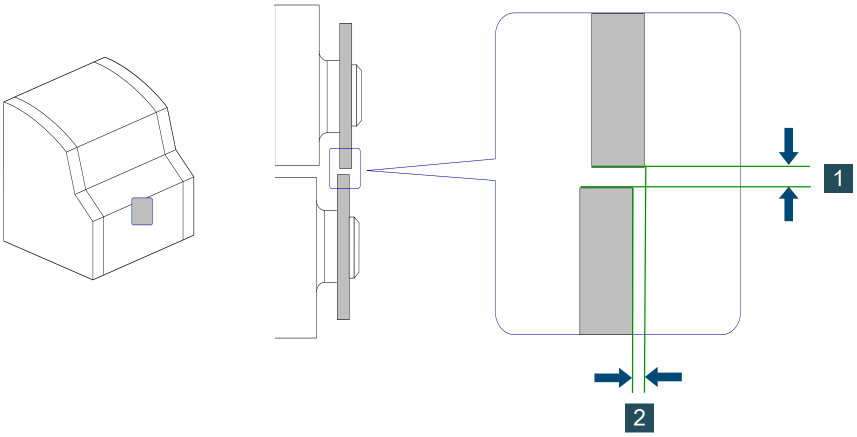


Figure 287: Adjustment of the disk rollers

2. If the distance 1 is < 0.10 mm or > 0.20 mm, adjust the distance 1.
3. Measure the distance 2.
4. If the distance 2 is > 0.05 mm, align the disk rollers.

Adjusting the Distance 1

1. Loosen the nut 3.

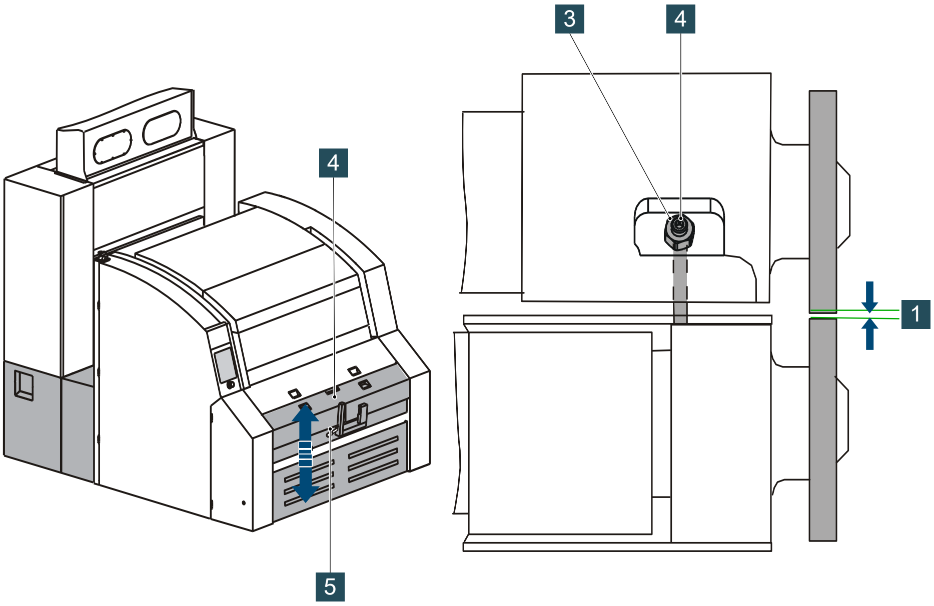


Figure 288: Adjustment of the distance

2. Set the distance 1 to the correct value (default: 0.15 mm) with the screw 4.
3. Make sure that the contact surface of the disk rollers not comes in contact when the card sliver is not there.

4. Tighten the nut 3.
5. Move the lever 5 up and down for some time.
6. Measure the distance 1 again.
7. If necessary, adjust the distance 1 again.

   ⇨ The distance 1 is adjusted.

Aligning the Disk Rollers

1. Align one of the 2 disk rollers 7 and 9.

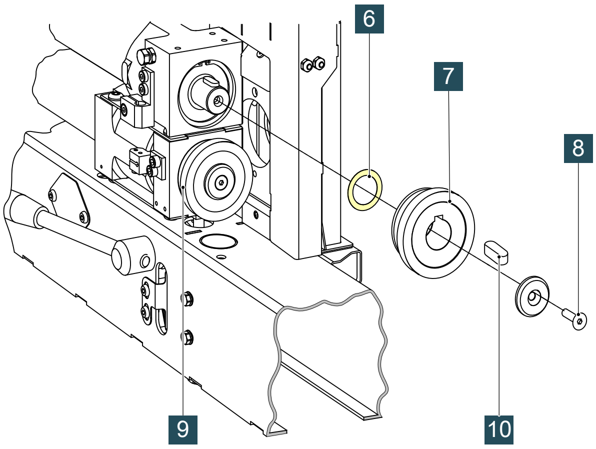


Figure 289: Location of the disk rollers

2. Remove the screw 8 and the flat 10.
3. Remove the selected disk roller for correction.
4. To adjust the distance 2, remove or install the spacer disk 6.
5. Install the disk roller.
6. Tighten the screw 8.
7. Measure the distance 2 again.
8. If necessary, adjust the distance 2 again.

   ⇨ The disk rollers are aligned.

Result The disk rollers are adjusted.

6.4.10.15 Adjusting the Sliver Funnel for the Disk Rollers

Prerequisites Make sure that the criteria are obeyed:

✓ The disk rollers are adjusted and aligned.

NOTICE

Sliver funnel touches the disk rollers

Damage to sliver funnel

- ▶ Make sure that the sliver funnel does not touch the disk rollers.

1. Measure the distance 3 with the feeler gauge.

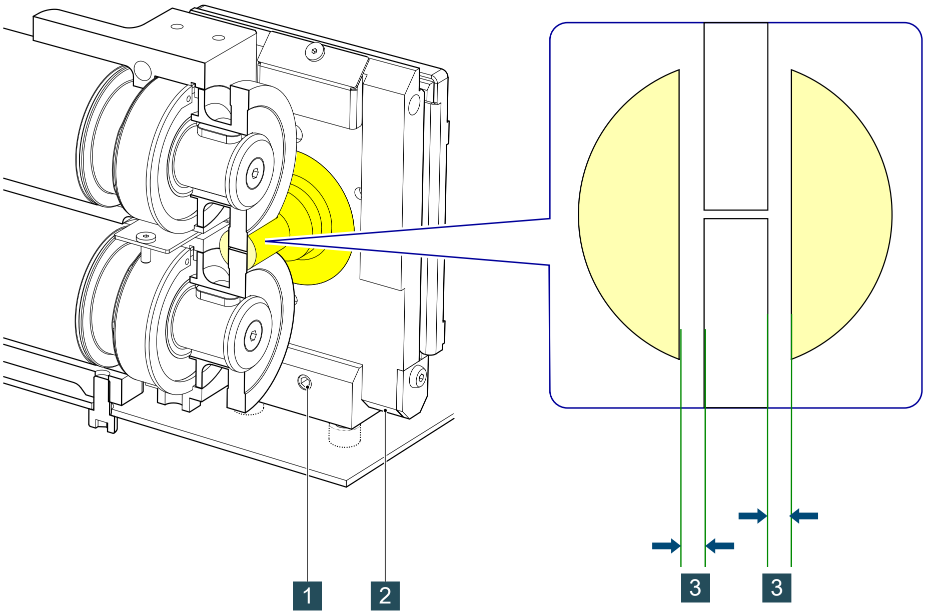


Figure 290: Sliver funnel

2. Make sure that the distance 3 is ≥ 0.07 mm.
3. Make sure that the distance 3 is same on the 2 sides.
4. Loosen the screw 1 to adjust the distance if the distance is not the same on the 2 sides.
5. Move the funnel plate 2 until the distance on the 2 sides is equal.
6. Tighten the screw 1.
7. Make sure that the funnel is aligned.

   ⇨ If the distance 3 is same on the 2 sides, the funnel is aligned correctly.
8. If the disk rollers are not parallel with the sliver funnel, loosen the screws 4.

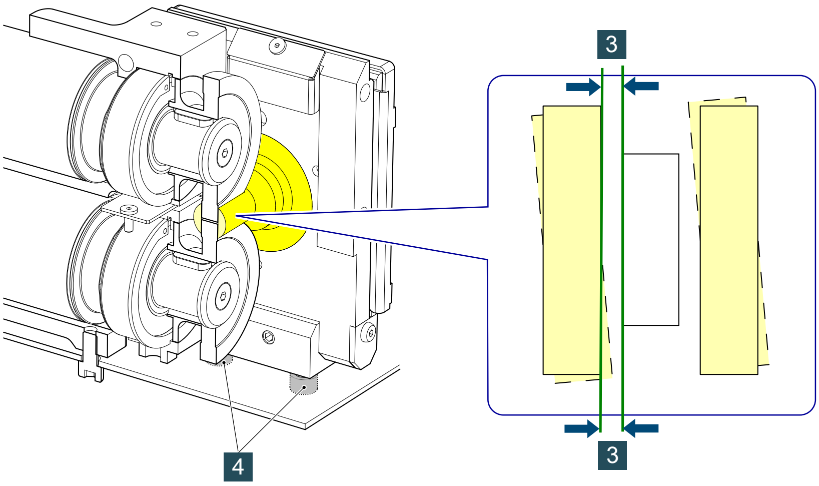


Figure 291: Adjustment of the sliver funnel distance

9. Align the funnel plate **2** again until the risk rollers are parallel with the sliver funnel.
10. Tighten the screws **4**.

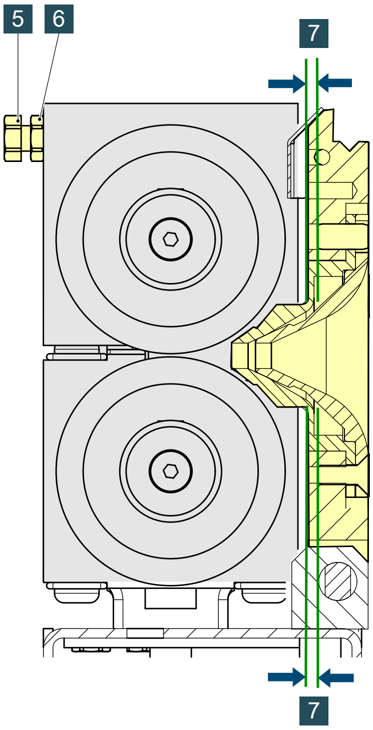


Figure 292: Adjustment of the sliver funnels distance

11. Measure the distance **7**, above and below of the funnel.
12. If distance **7** between the funnel plate and the bearing is not parallel, loosen the nut **6**.
13. Align the funnel plate with the screw **5**.
14. Hold the screw **5** with a wrench.

15. Tighten the nut 6 with other wrench.

Result The sliver funnel for disk rollers is adjusted.

6.4.10.16 Adjusting the Pressure between the Disk Rollers

Orientation The width of the disk rollers gives the default spring pressure.

1. Set the spring 1 pressure.

Spring Pressure at	
Disk roller width: 9 mm	600 N
Disk roller width: 15 mm	1 150 N
Step roller width: 6 mm	1 360 N
Step roller width: 9 mm	1 360 N

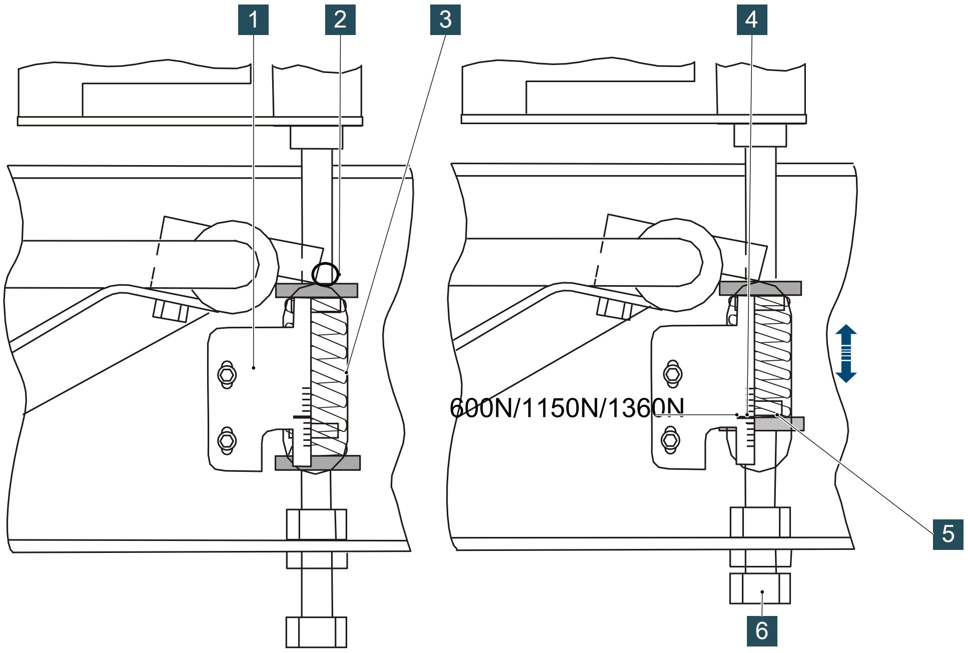


Figure 293: Spring pressure between the disk rollers

1. Align the sheet 1 with the scale on the lower edge of the ring 2.
2. Adjust the spring 3 with the screw 6 until the top edge of the ring 5 comes to the mark 4.
3. Make sure that the spring 3 pressures is the same to the default value.

Result The spring pressure is set to the default value.

6.4.10.17 Adjusting the Step Rollers

Orientation The step rollers are used only for polyester.

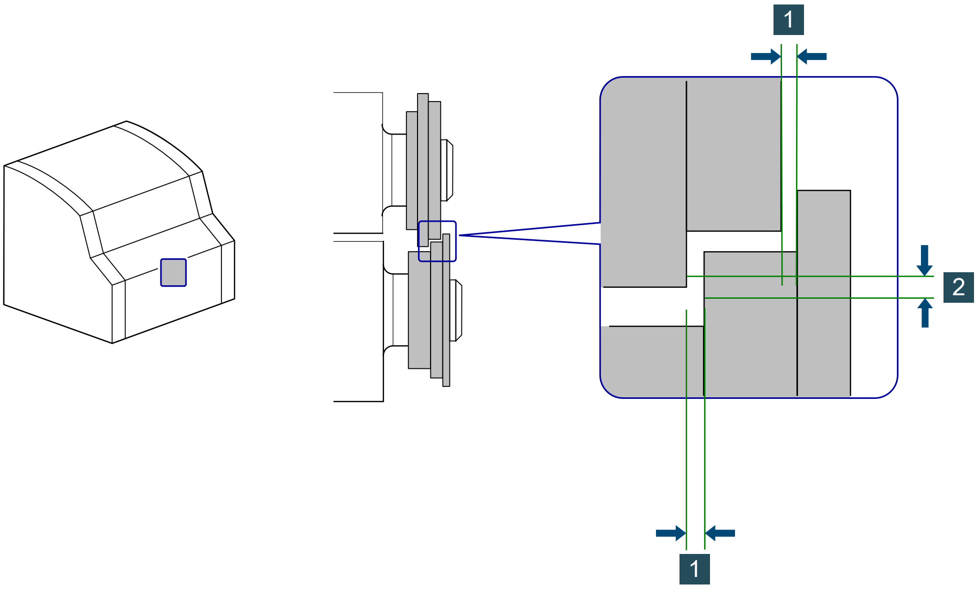


Figure 294: Step rollers

1. Measure the distance 2.
2. If the distance 2 is < 0.10 mm or > 0.20 mm, adjust the distance 2.
3. Measure the distance 1.
4. If the distance 1 is > 0.15 mm or < 0.05 mm, align the step rollers.
5. Adjusting the disk roller. See *Adjusting the Disk Rollers* ▶ *290*

Aligning the Step Rollers

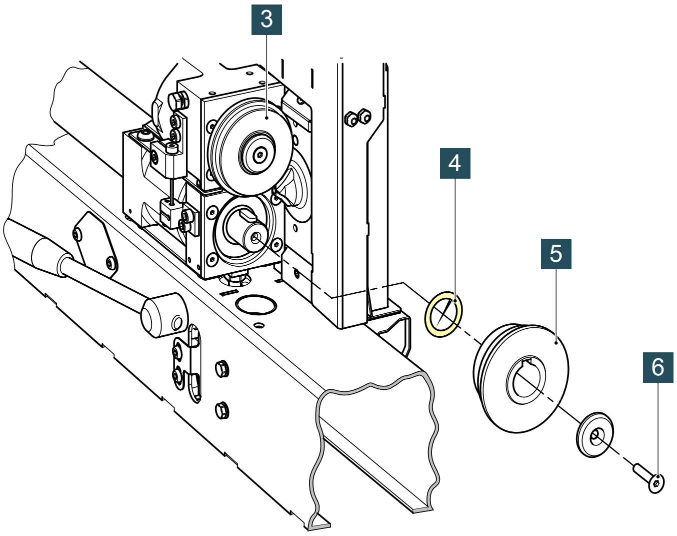
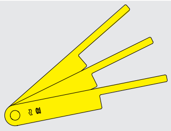


Figure 295: Adjustment of the step roller

1. Align 1 of the 2 rollers 3 and 5.
2. Remove the screw 6.
3. Remove the selected step roller for correction.
4. To adjust the distance 1, remove or install the spacer disk 4.
5. Install the step roller.
6. Tighten the screw 6.
7. Measure the distance 1 again.
8. If necessary, adjust the distance 1 again.
   ⇨ The step rollers are aligned.
9. Adjust the sliver funnel. See Adjusting the Sliver Funnel
10. Calibrate the measuring device on the delivery. See *Calibrating the Distance Measuring Device ▸ 297*

Result The step rollers are adjusted.

6.4.10.18 Adjusting the Sliver Funnel for the Step Rollers

	Feeler gauge slim	The feeler gauge slim is used to adjust the sliver funnel for the step rollers.

Prerequisites Make sure that the criteria are obeyed:

- ✓ Step rollers are adjusted.
- ✓ The feeler gauge slim is to be used.

1. Put the feeler gauge slim 3 into the distance 2 between the step roller and the sliver funnel.

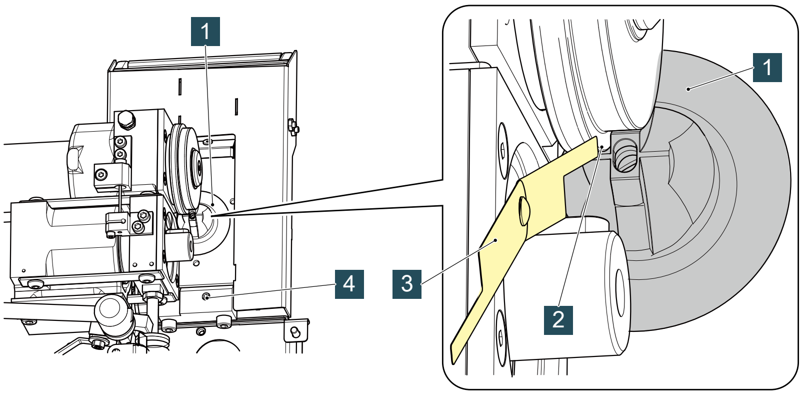


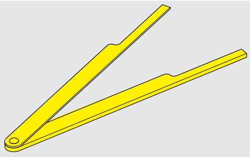
Figure 296: Sliver funnel for the step rollers

2. Measure the distance 2.
   ⇨ If the distance is in the range from 0.05 to 0.1 mm, the sliver funnel is adjusted correctly.

3. If the distance is not in the range from 0.05 to 0.1 mm, do the steps that follow.
4. Loosen the screw 4.
5. Move the funnel plate 1 until the distance is in the range from 0.05 to 0.1 mm.
6. Tighten the screw 4.

Result The sliver funnel for the step rollers is adjusted.

6.4.10.19 Calibrating the Distance Measuring Device

	Test gauge	The test gauge is used to calibrate the distance measuring device.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The disk rollers are adjusted.
- ✓ The test gauge is to be used.

1. Select the data screen 82.2 **Test analog inputs**.
2. Read the value in the field **Delivery scanner card B6**.
3. Pull the lever 6 upwards.

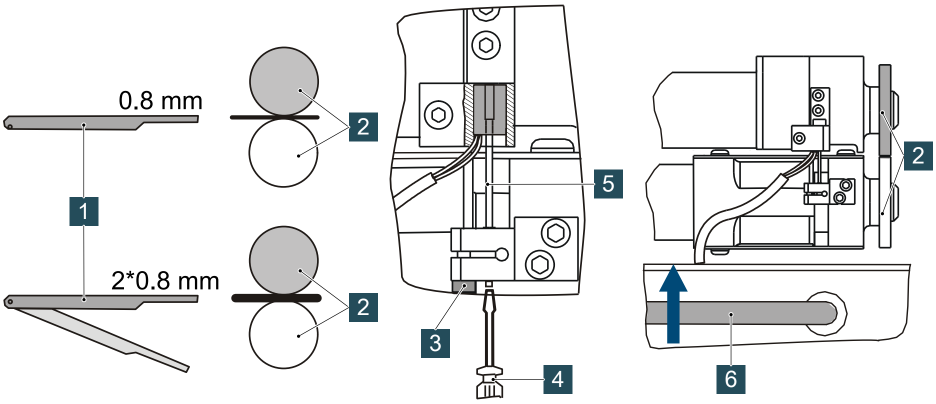


Figure 297: Test gauge and distance measuring device

4. Loosen the screw 3.
5. Put the test gauge 1 between the disk rollers 2.
6. Make sure that the distance between the disk rollers 2 is 0.8 mm.
7. Set the calibration value with the screwdriver 4 on the adjusting spindle 5.
8. If the distance between the disk rollers 2 is 0.8 mm, set the calibration value in the range of 1 288 – 1 328.
9. Put the 2 test gauge 1 between the disk rollers 2.

10. Make sure that the distance between the disk rollers 2 is 1.6 mm.
11. Set the calibration value with the screwdriver 4 on the adjusting spindle 5.
12. If the distance between the disk rollers 2 is 1.6 mm, set the calibration value in the range of 2 550 – 2 750.
13. If the 2 calibration values are correct, tighten the screw 3 with a tightening torque of 2 Nm.
14. Remove the test gauges 1.
    ⇨ The disk rollers 2 are at the minimum distance.
15. If the distance between the disk rollers 2 is minimum, set the calibration value in the range of 200 – 400.
16. Adjust the plunger in the plunger coil. See *Adjusting the Plunger in the Plunger Coil ▸ 299*

Result The distance measuring device is calibrated.

6.4.10.20 Adjusting the Gas Pressure Spring

Orientation The gas pressure spring is necessary to be examined first for sufficient force. If the gas pressure spring does not apply sufficient force, replacement of the gas pressure spring is necessary.

NOTICE

Incorrect adjustment of the gas pressure spring!

Machine damage

▶ Make sure that the piston NOT rest on the lower stop when the delivery unit is closed.

1. Adjust the 2 units 1 and 2 in closed position.

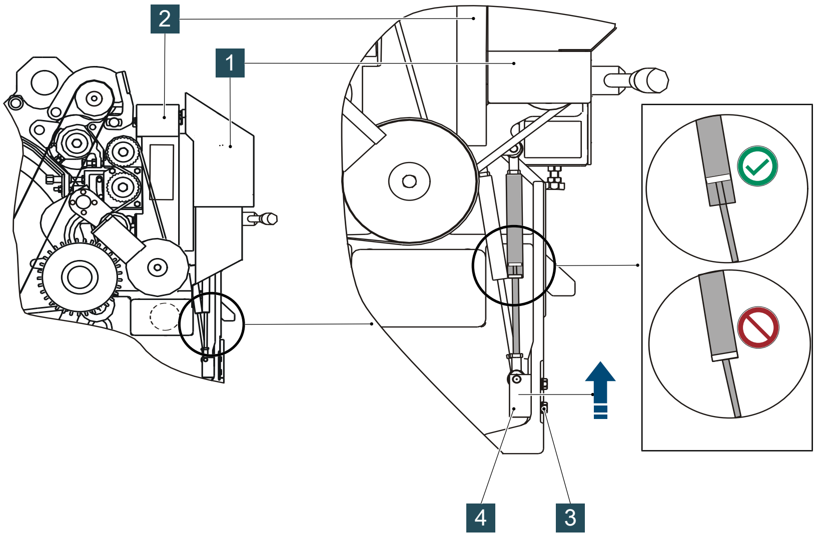


Figure 298: Gas pressure spring

2. Loosen the screws 3.
3. Push the hold 4 with the correct tool.
4. Tighten the screws 3.

Result The gas pressure spring is adjusted.

6.4.10.21 Adjusting the Plunger in the Plunger Coil

1. Loosen the clamping screw of the holder 3 and the holder 4 lightly.

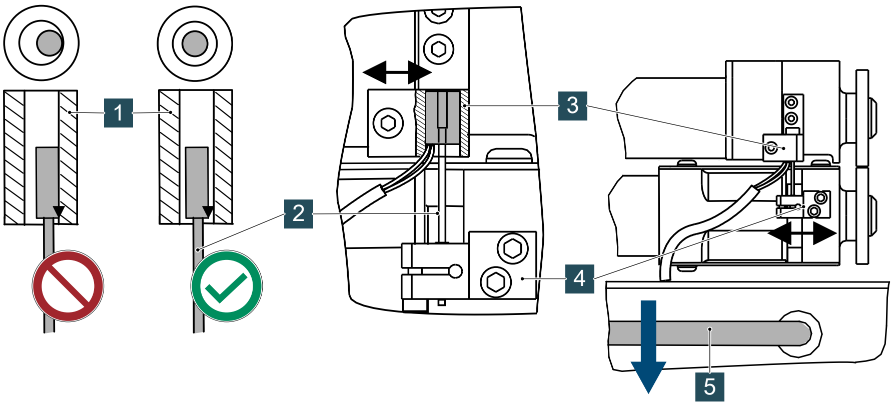


Figure 299: Plunger in the plunger coil

2. To adjust the plunger 2 in the middle position of the plunger coil 1, move the holder 3 and the holder 4 lightly to the left side or to the right side.
3. Push down the lever 5.
4. Examine the position of the plunger 2.
5. If the plunger 2 is not in the middle position of the plunger coil 1, adjust the plunger 2 again.

Result The plunger is adjusted in the plunger coil.

6.5 Setting the Sliver Coiling Device CBA

This section contains the information about how to set the sliver coiling device CBA. To set the coiler, a can must be half-filled.

6.5.1 Adjusting the Light Scanner

1. Adjust the guide roller 2 and guide roller 3 until the guide rollers are aligned with the funnel 4.

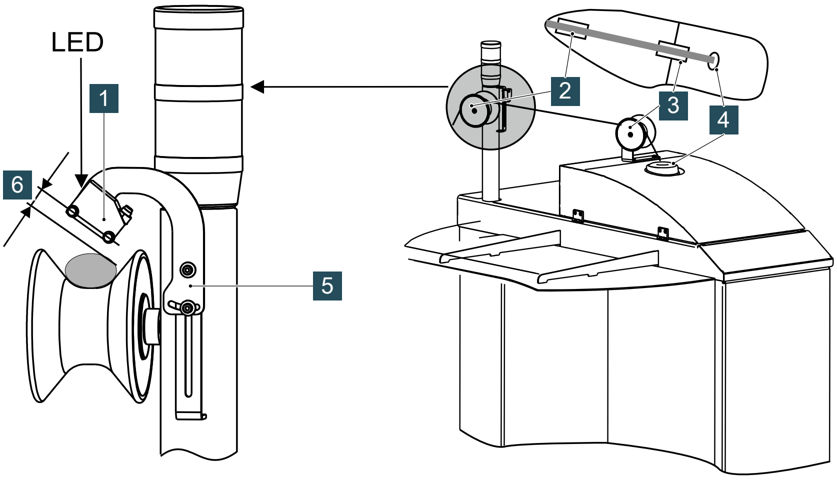


Figure 300: Adjustment of the light scanner ***(Option: CBA-5)***

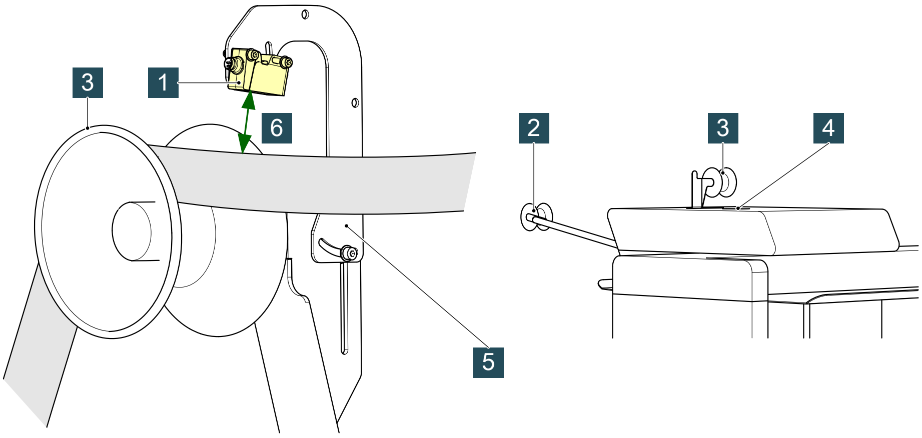


Figure 301: Adjustment of the light scanner ***(Option: CBA 1200)***

2. To set the distance 6 between the light scanner 1 and the card sliver to 15 mm, move the holder 5.
3. Examine the LED of the light scanner 1.
   - ⇨ The LED comes on when the card sliver goes through the light scanner.
   - ⇨ The LED flashes if the card sliver does not move.

⇨ The LED does not come on if no card sliver is available or the light scanner is not set correctly.

Result The light scanner is adjusted.

6.5.2 Adjusting the Sliver Tension (CBA-5)

NOTICE

Incorrect belt tension!

Material damage

▶ Apply the correct belt tension to the belt with the tensioning device.

1. Remove the cover.
2. Loosen the screws 1.

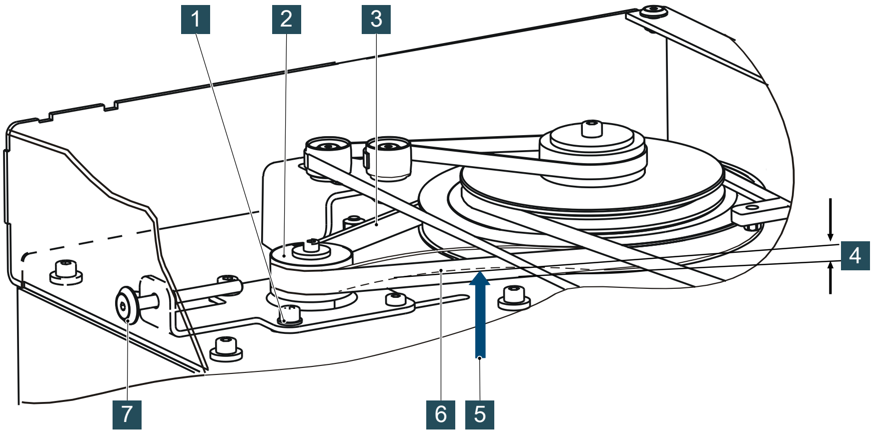


Figure 302: Adjustment of the change gear

3. Loosen the belt 3 with the tensioning device 7.
4. Replace the pulley 2.
5. Tighten the belt 3 with the tensioning device 7.
6. Push the belt 3 at the point 6 with the load of 10 N.

⇨ If the movement distance 4 is 2.7 mm, the tension of the belt 3 is correct.

Result The sliver tension is adjusted.

6.5.3 Adjusting the Belt Tension (CBA 1200)

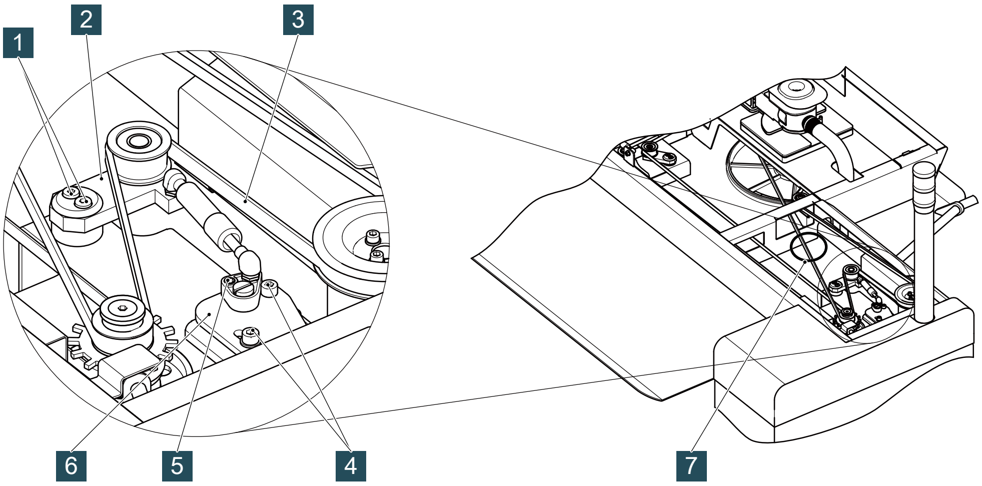


Figure 303: Belt of the coiler drive

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

NOTICE

Incorrect belt tension!

Material damage

▶ Apply the correct belt tension to the belt with the tensioning device.

1. Loosen the screws 1 and screws 4.
2. Put a hexagonal key into the screw 5.

   ⇨ The lever 2 is turned to the default position.
3. Install the belt 3.
4. Move the belt tensioner 6 until the belt 3 is slightly tightened.
5. Tighten the screws 4.
6. Put a hexagonal key into the screw 5.

   ⇨ The lever 2 is turned to the work position.
7. Tighten the screws 1.
8. Measure the belt tension with frequency meter at the position 7.

   ⇨ If the value is in the range of 25 – 30 Hz, the adjustment is correct.

Result The belt tension is adjusted.

6.5.4 Applying Tension to the V-Belt of the Coiler Drive

NOTICE

Incorrect belt tension!

Material damage

▶ Apply the correct tension on the belts.

Load F and Movement S	
Load F on V-belt	10 N = 1.0 kg
Movement S of V-belt	2.0 mm

1. Loosen the screw 2.

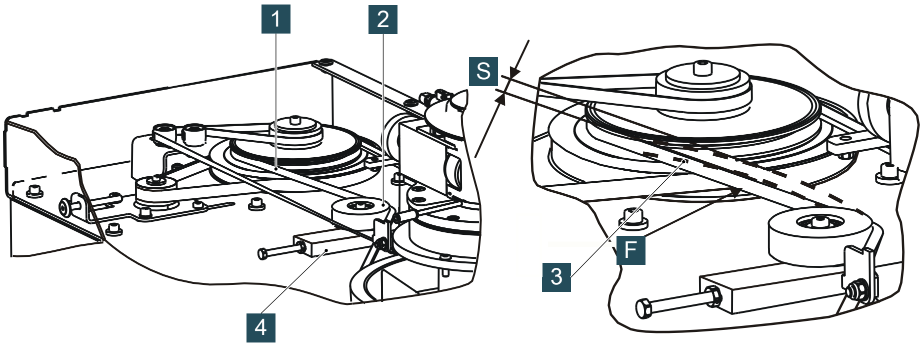


Figure 304: V-belt of the coiler drive

2. Tighten the belt 1, with the tensioning device 4.
3. Push the belt 1 at point 3 with the load of 10 N.

   ⇨ If the movement of the belt is 2.0 mm, the tension of the belt 1 is correct.

Result The belt of the coiler drive is tightened.

6.5.5 Setting the Time of the Sliver Cutting

Distance 4 between the Magnetic Switch and Cylinder	
750 mm can diameter. OR 800 mm can diameter. OR 1000 mm can diameter.	152 mm
600 mm can diameter.	157 mm

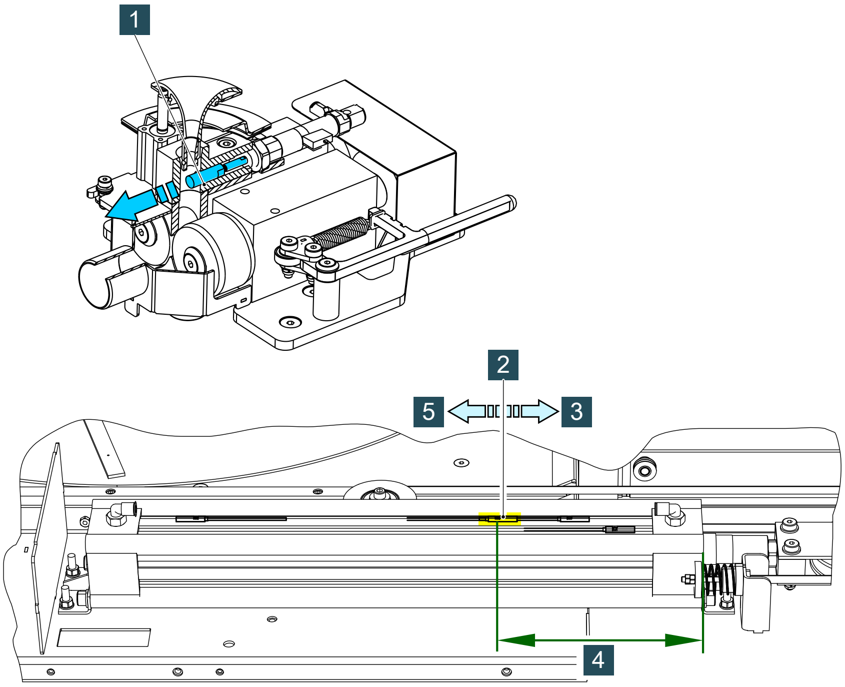


Figure 305: Sliver cutting operation

1. Examine the basic adjustment 4 of magnetic switch 2 on the cylinder of the can changer.
   - ⇨ The clamping bolt 1 disconnects the carded sliver.
   - ⇨ The magnetic switch 2 causes the sliver cut operation.
2. Monitor the procedure of the can change.
3. Make sure that the coiler is in the opposite direction of the discharge point of the sliver, during the sliver cutting operation.
4. If the sliver cutting starts before the correct time, move the magnetic switch 2 some millimeters in the direction 3.
5. If the sliver cutting starts after the correct time, move the magnetic switch 2 some millimeters in the direction 5.

Result The time for the sliver cutting is set.

6.5.6 Adjusting the Sliver Funnel

Orientation Before the sliver cutting, the sliver funnel is lifted so that the sliver is not cut directly on the funnel. The purpose is that a fiber fringe should go out of the funnel. The fiber fringe makes sure that, after the sliver cutting operation, when the funnel is lowered again, the sliver can be pulled back in by the calender rollers.

Adjusting the Speed of the Sliver Funnel Lift

The speed must be adapted to the friction between the sliver and the funnel. The higher the friction, the lower the speed. Speed must be set correctly to prevent the sliver breakage.

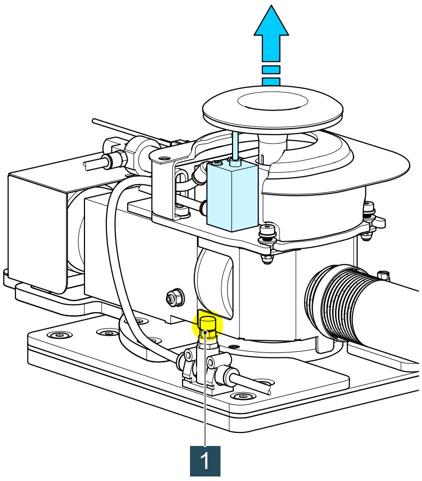


Figure 306: Sliver funnel lift

1. Monitor the lifting speed of the funnel.
2. Measure the time the funnel takes to reach to the top position.
   ⇨ If the time is in the range of 0.5 – 1.5 seconds, the speed is correct.
3. If the time is less than 0.5 seconds, turn the throttle 1 in the counterclockwise direction.
4. If the time is more than 1.5 seconds, turn the throttle 1 in the clockwise direction.
   ⇨ The speed to lift the sliver funnel is adjusted.

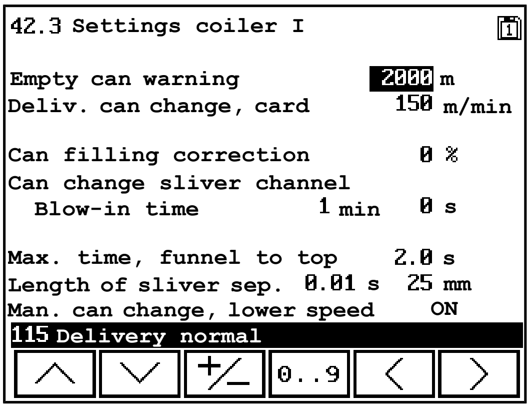
Setting the Delay Time for Sliver Cutting

This setting delays the sliver cutting operation for the time that the funnel needs to reach the top position.

Length of sliver sep.	
Time of bolt extended	0 – 0.5 s
Guide value	0 s

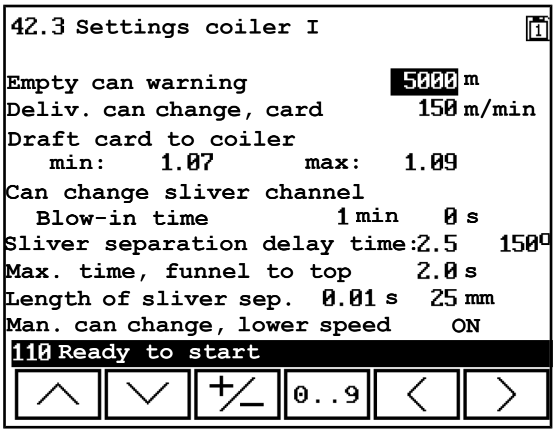
Distance 3	
Standard setting	16.0 mm
For a heavier sliver	Increase the distance 3.
For a lighter sliver	Decrease the distance 3.

1. Measure the time the funnel needs to reach the top position.
2. Add 0.5 seconds in the measured time.
   - ⇨ The delay time for setting is got.
3. Enter the password level 2.
4. Select the data screen 42.3.



```
42.3 Settings coiler I

Empty can warning              2000 m
Deliv. can change, card         150 m/min

Can filling correction            0 %
Can change sliver channel
  Blow-in time           1 min    0 s

Max. time, funnel to top        2.0 s
Length of sliver sep.  0.01 s    25 mm
Man. can change, lower speed     ON
115 Delivery normal
```

Figure 307: Data screen 42.3 **(Option: CBA-5)**



```
42.3 Settings coiler I

Empty can warning             5000 m
Deliv. can change, card        150 m/min
Draft card to coiler
   min:    1.07       max:   1.09
Can change sliver channel
  Blow-in time           1 min   0 s
Sliver separation delay time:2.5   150°
Max. time, funnel to top       2.0 s
Length of sliver sep.  0.01 s   25 mm
Man. can change, lower speed    ON
110 Ready to start
```

Figure 308: Data screen 42.3 **(Option: CBA 1200)**

5. Enter the delay time in the field **Max. time, funnel to top**.
   - ⇨ The delay time for the sliver funnel is set.
6. To set the clamping time in the field **Length of sliver sep.**, refer to the table above.
   - ⇨ The clamping time is set.

Selecting the Funnel Diameter

1. Examine the procedure of the sliver cutting.
2. If the sliver is already cut when the funnel is lifted, change a larger funnel.
3. If the sliver is not pulled back by the calender rollers when the sliver funnel is lowered, change a smaller funnel.

Setting the Position of the Magnetic Switch on the Sliver Weight

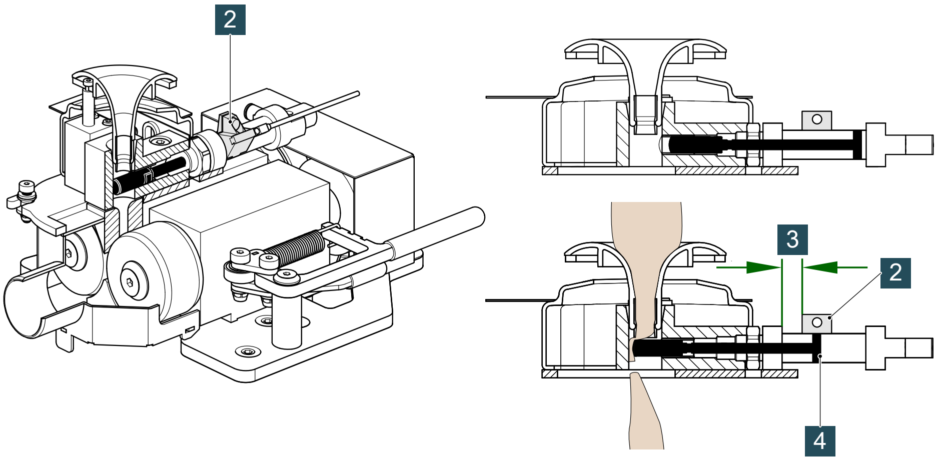


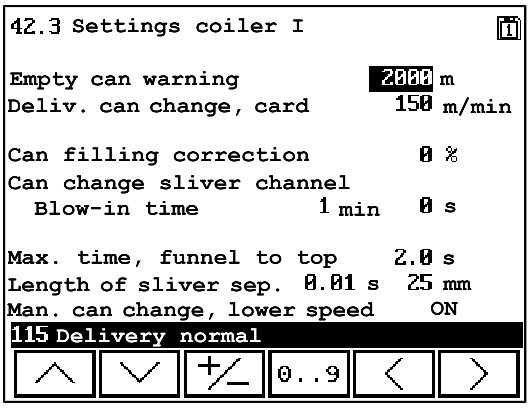
Figure 309: Magnetic switch position

1. To adjust the magnetic switch B13 2, refer to the table above.
   ⇨ The magnetic switch B13 2 can sense the position of the extended piston rod 4.

Result The sliver funnel is adjusted.

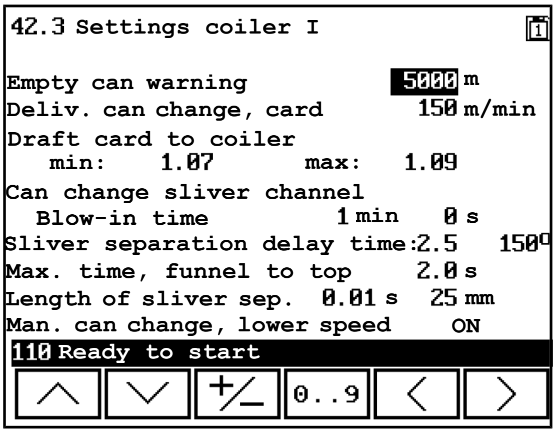
6.5.7 Adjusting the Air Injector of the Sliver Coiling Device

1. Enter the password for password level 2.
2. Select the data screen 42.3 **Settings coiler I**.



```
42.3 Settings coiler I

Empty can warning              2000 m
Deliv. can change, card         150 m/min

Can filling correction            0 %
Can change sliver channel
  Blow-in time            1 min   0 s

Max. time, funnel to top        2.0 s
Length of sliver sep.  0.01 s    25 mm
Man. can change, lower speed      ON
115 Delivery normal
```

Figure 310: Data screen 42.3 ***(Option: CBA-5)***



```
42.3 Settings coiler I

Empty can warning              5000 m
Deliv. can change, card         150 m/min
Draft card to coiler
   min:    1.07       max:    1.09
Can change sliver channel
  Blow-in time            1 min    0 s
Sliver separation delay time:2.5   150°
Max. time, funnel to top     2.0 s
Length of sliver sep.  0.01 s  25 mm
Man. can change, lower speed     ON
110 Ready to start
```

Figure 311: Data screen 42.3 **(Option: CBA 1200)**

3. Set the blow-in time in seconds, in the field **Blow-in time**.
4. Refer to the can cover position to set the blow-in time.
5. Set the blow-in time between 30 s and 60 s, if the cover is near to the guide plate.
6. Set the blow-in time more than or equal to 1 min, if the cover is away from the guide plate.
7. Set the shortest time of 30 s, at the time of the start.
8. Monitor the procedure of the can change.
   ⇨ If the material fill is touched the guide plate during the blow-in time, the blow-in time is set correctly.
9. If the material fill is touched the guide plate after the blow-in time is passed, increase the blow-in time.

Result The air injector of the sliver coiling device is adjusted.

6.5.8 Applying Tension to the Calender Roller Belt (CBA 1200)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the screw 2.

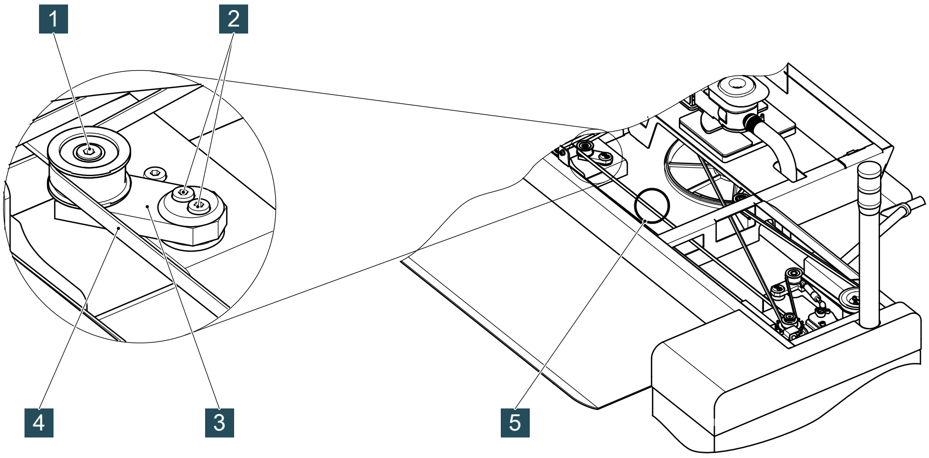


Figure 312: Calender roller belt

⇨ The lever 3 is turned to the default position.

2. Install the belt 4.
3. Put a hexagonal key into the screw 1.

   ⇨ The lever 3 is turned to the work position.
4. Tighten the screws 2.
5. Measure the belt tension with the frequency meter at the position 5.

   ⇨ If the value is in the range of 30 – 35 Hz, the adjustment is correct.

Result The tension of the calender roller belt is applied.

6.5.9 Adjusting the Tension of the Can Plate Belt (CBA 1200)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the screw 1 of the adjusting plate 2.

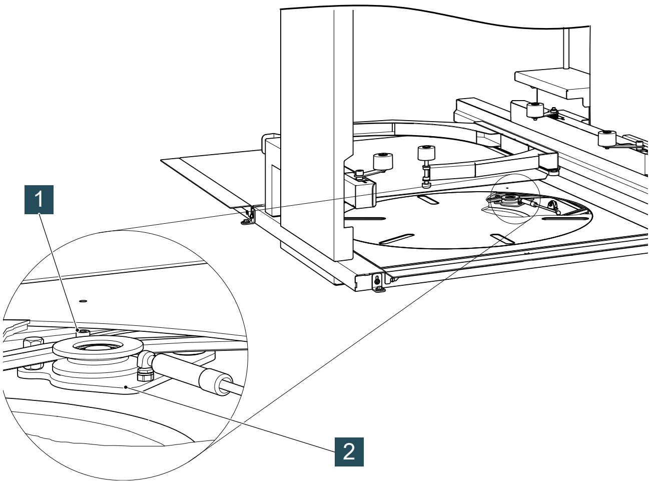


Figure 313: Can plate belt

2. To adjust the tension of the can plate belt, turn the adjusting plate 2.
3. Tighten the screw 1.

Result The tension of the can plate belt is adjusted.

6.5.10 Adjusting the Calender Rollers

NOTICE

Incorrect adjustment of the minimum distance

Damage of the calendar rollers

▶ Set the minimum distance between the calender rollers to 0.1 mm.

1. Measure the minimum distance 6 between the calender rollers 1.

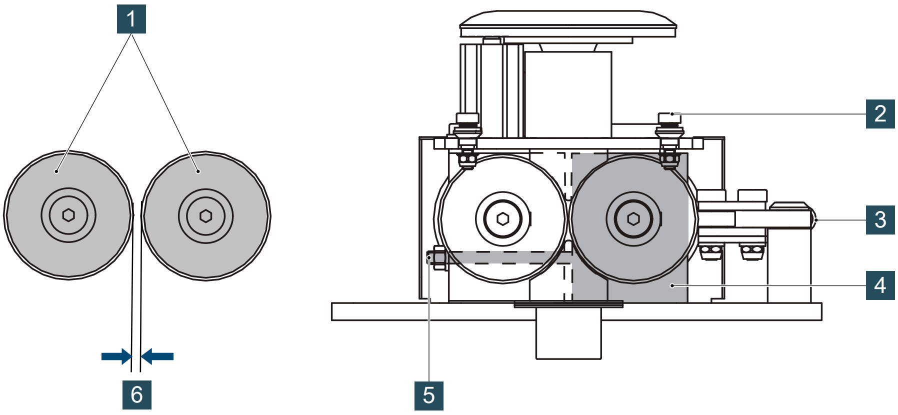


Figure 314: The calender rollers

2. Make sure that the damage of the calender rollers due to failure to obey with the minimum distance.
3. Set the minimum distance 6 to 0.1 mm with the adjusting screw 5.
4. Release the load on the housing 4 with the lever 3.
5. Measure the minimum distance 6 again between the calender rollers 1.
6. Adjust the distance between the plate 8 and the housing 4 with the screw 7.

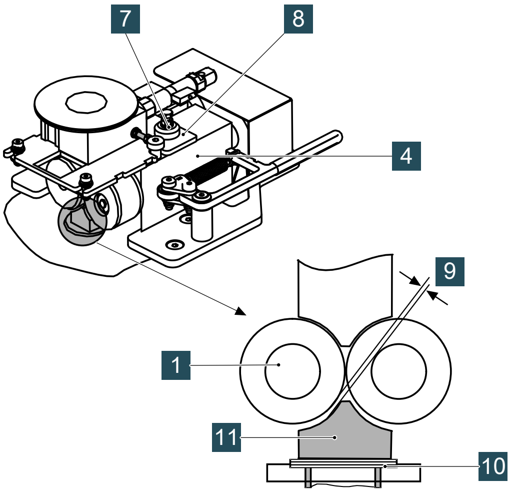


Figure 315: Adjustment of the calender roller

7. Make sure that the housing 4 moves freely when opening and closing.
8. Adjust the distance 9 between the calender roller 1 and the delivery unit 11 with the shims 10.
9. Make sure that the distance 9 is ≤ 1 mm.

Result The calender rollers are adjusted.

6.5.11 Adjusting the Distance between Calender Rollers and the Delivery Funnel

Orientation This section contains the information about how to adjust the distance between the calender roller and the delivery funnel.

1. Adjust the distance 4 between the calender roller 5 and the delivery funnel 1 with the shims 2.

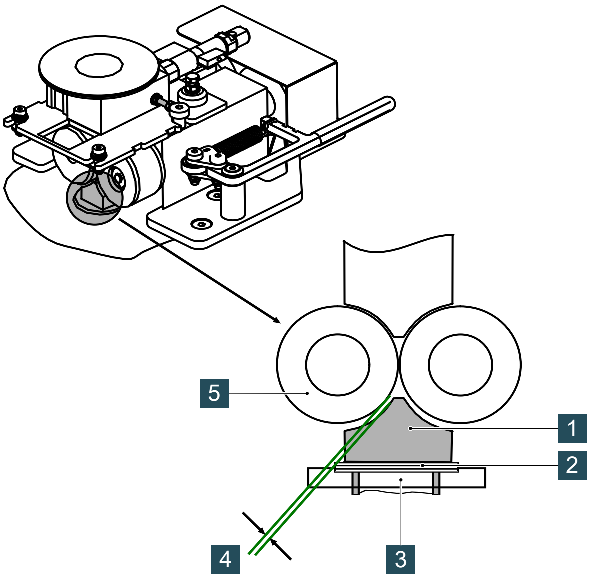


Figure 316: Adjustment of the distance between the calender roller and delivery funnel

2. Make sure that the distance 4 between the calender roller 5 and the delivery funnel 1 is less than or equal to 1 mm.

Result The distance between calender rollers and the delivery funnel is adjusted.

6.5.12 Applying Tension to the Calender Roller Belt

Orientation If there is not sufficient tension, the belt operates off the guide rolls.

NOTICE

Incorrect belt tension!

Material damage

▶ Apply the correct tension on the belts.

Dimension with Belt Taut.	
Dimension 6 with belt taut. (Measured distance between markings.)	200 mm + 1.6 % tension = 203.20 mm

1. Put 2 marks 3 and 4 on the belt 5 when the belt is loose.

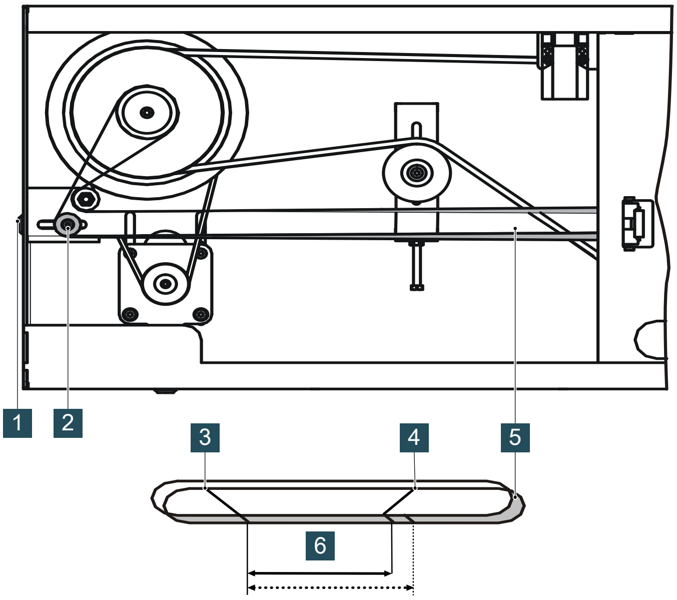


Figure 317: Tension on the belt of the calender rollers

2. Make sure that the distance 6 between the 2 marks is 200 mm.
3. Loosen the screws 2.
4. Install the belt 5.
5. Tighten the belt 5 with the tensioning device 1.
6. Make sure that the distance 6 with belt 5 tension is 203.2 mm.

7. Make sure that there is sufficient tension between belt 5 to operate guide rolls.

Result The tension to the calender roller belt is applied.

6.5.13 Adjusting the Distance between the Can Plate and the Cover Plate

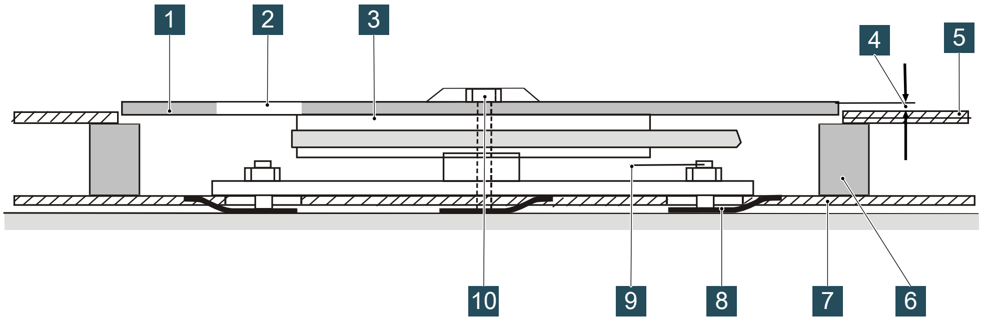


Figure 318: Can plate and the cover plate

Distance 4	2.0 – 3.0 mm

Setting the Distance 4

1. Remove the screws from the can plate 1.
2. Turn the drive 3 to move the can plate 1.
3. Adjust the distance 4 between the can plate 1 and the cover plate 5 to the range from 2 mm to 3 mm with the screws 9 through the opening 2.
4. Notice that the shims 8 are fixed to the base plate 7 and must be pressed onto the floor with the screws 9.
5. Do the adjustment at all 4 adjustment points.

Examining the Distance

1. Turn the can plate with hand.
2. Measure the distance 4 at different points.

Final Adjustment

1. When the distance 4 is set, make sure that the screw 10 is also attached to the floor.
2. Apply tension to the drive belt.
3. Apply tension to the V-belt of the can plate drive.

Plastic Supports

1. If the can plate load is too high (for example, the can is overfilled), use the plastic supports 6.

2. Notice that the plastic supports are not adjustable.

Result The distance between the can plate and cover plate is adjusted.

6.5.14 Adjusting the Winding Distance

Orientation The winding distance is referred for the selection of the pulley. Distance between windings affected by change gear.

Selecting the Pulley

1. To select the correct can diameter of the pulley, refer to the gearing layout. See *Gearing Layout of the Sliver Coiling Device CBA ▸ 196*

Removing the Pulley

1. Remove the screws 1.

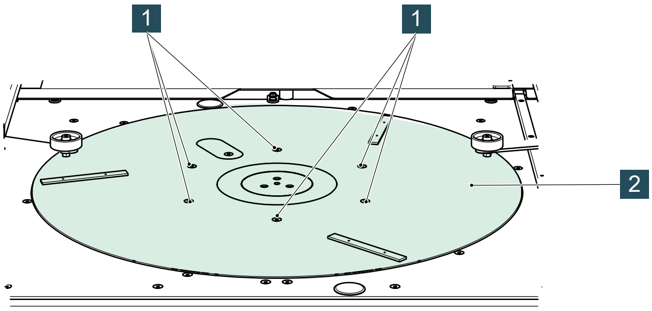


Figure 319: Cover and screws

2. Remove the cover 2.
3. Remove the nut 3.

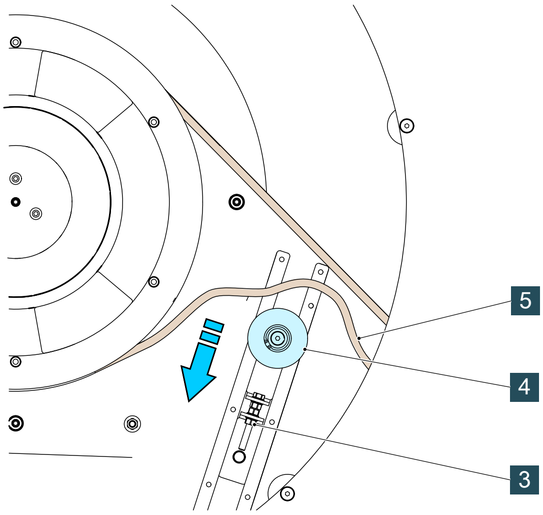


Figure 320: Location of the pulley

4. Move the tension roller 4 in the direction of the arrow.

⇨ The belt 5 is loosened.

5. Remove the screws 6.

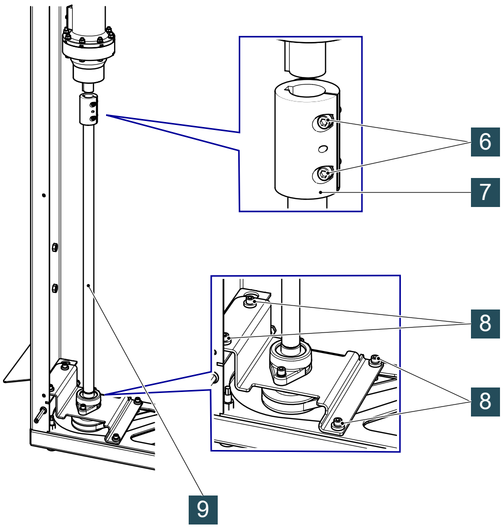


Figure 321: Removal of the pulley

6. Move down the coupling 7.
7. Remove the screws 8.
8. Remove the drive shaft 9.
9. Remove the screw 11.

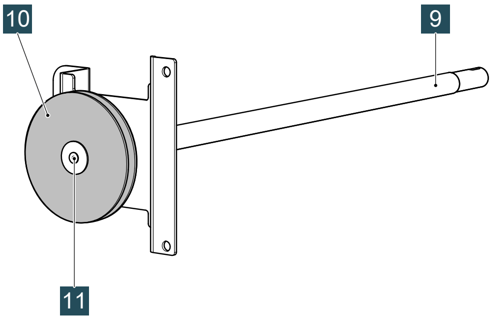


Figure 322: Position of pulley

10. Remove the pulley 10.

   ⇨ The pulley is removed.

Installing the Pulley

1. Install the new pulley 10.
2. Tighten the screw 11.
3. Install the drive shaft 9 with the coupling 7.
4. Move up the coupling 7.
5. Tighten the screws 6.

6. Tighten the screws 8.

   ⇨ The pulley is installed.

Adjusting the Belt Tension

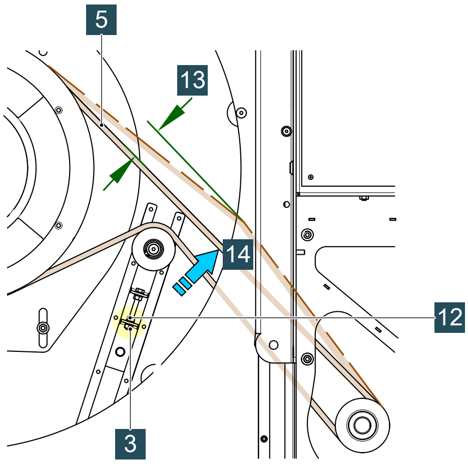


Figure 323: Adjustment of the belt

Movement	
Can diameter 600 mm	12 mm
Can diameter 1 000 mm OR can diameter 800 mm OR can diameter 750 mm	20 mm

1. Install the belt 5.
2. Tighten belt 5 with the nut 12.
3. Apply force 14 of 50 N to the belt 5.
4. Measure the movement 13 of the belt 5.
5. If movement is small, increase the belt tension.
6. If movement is large, decrease the belt tension.
7. Tighten the nut 3.

   ⇨ The belt tension is adjusted.

Result The winding distance is adjusted.

6.5.15 Changing the Distance of the Sliver to the Can (CBA-5)

Orientation The distance of the sliver to the can is changed by moving the can plate drive. The distance should be in the range from 8 to 10 mm when the can is ¾ full.

Moving the Can Plate Drive

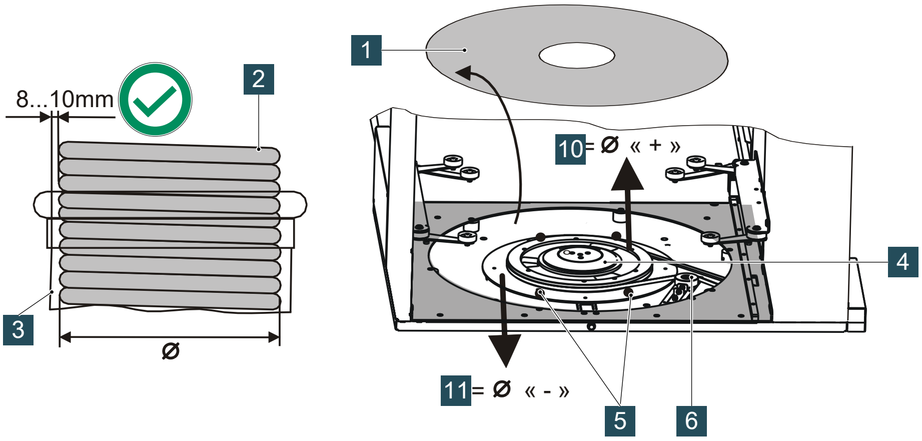


Figure 324: Distance between the sliver and the can

1. Examine the change in the distance between can 3 and the sliver 2.
2. Remove the can plate 1.
3. Loosen the tension roller 6.
4. Loosen all bolts 5.
5. Push the can plate drive 4 in the direction of the arrow 10, to increase the sliver diameter.
6. Push the can plate drive 4 in the direction of the arrow 11, to decrease the sliver diameter.
7. Tighten the all bolts 5

Adjusting the Cover Plate Position

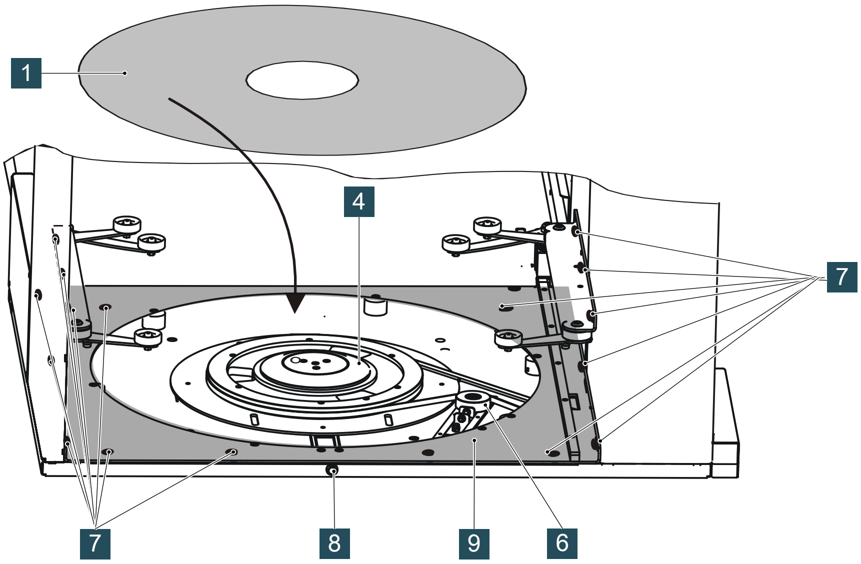


Figure 325: Adjustment of the position of the cover plate

1. Loosen all screws 7.
2. Put the can plate 1 on the can plate drive 4.
3. Move the cover plate 9 with the adjustment screw 8.
4. Align the cover plate 9 correctly with the can plate 1.
   ⇨ The gap between the cover plate 9 and the can plate 1 must be as small in all directions.
5. Tighten the drive belt with the tension pulley 6.
6. Apply correct tension to the V-belt of the can plate drive.
7. Tighten the screws 7 apart from at the positioning levers.
8. Tighten the screws of the can plate.
9. Examine the distance between the cover plate 9 and the can plate 1 again.
10. Refer to the new can position to adjust the positioning levers.
11. Adjust the positioning lever for the can. See *Adjusting the Positioning Levers for the Can (CBA-5)* ▶ *321*

Result The distance of the sliver to the can is changed.

6.5.16 Changing the Distance of the Sliver to the Can (CBA 1200)

Orientation The user can change the can position to change the distance between the sliver and the can.

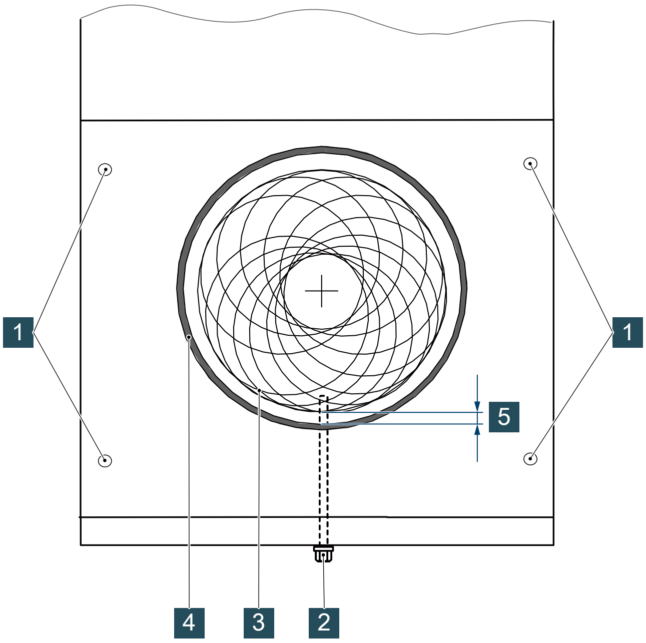


Figure 326: Top view of the distance between the sliver and the can

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the 4 screws 1 of the cover plate.

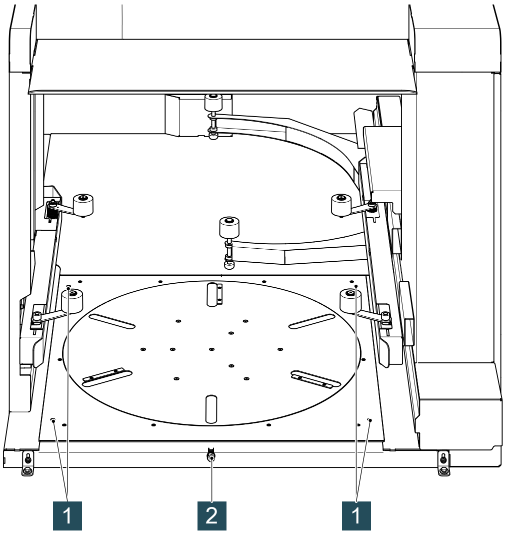


Figure 327: Can plate

2. Turn the spindle 2 clockwise to move the can near the spindle head.

3. Turn the spindle 2 counterclockwise to move the can away from the spindle head.
4. Make sure the distance 5 between the sliver 3 and the inner side of the can 4 is approximately 15 mm.
5. Tighten the 4 screws 1 of the cover plate.

Result The distance of the sliver to the can is changed.

6.5.17 Adjusting the Speed of the Can Carrier

Throttle for Can Carrier	
Ejecting (direction 3)	Y5
Going back (direction 2)	Y4

1. Remove the cover 1.
   - ⇨ Throttles are open to access.

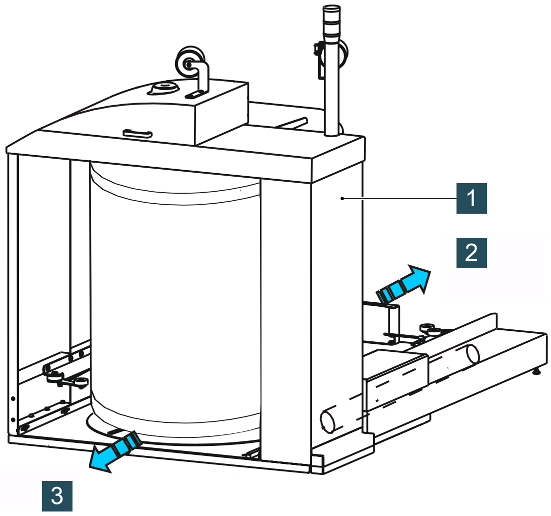
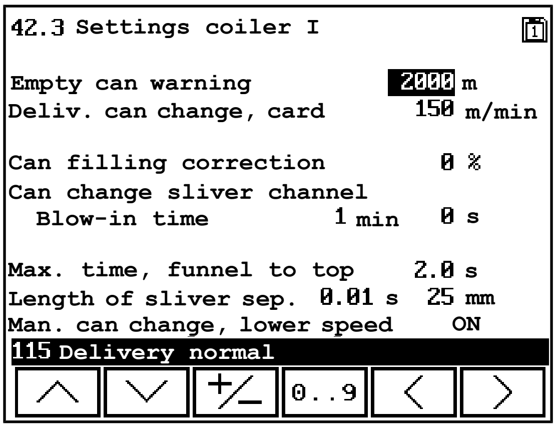


Figure 328: Can carrier

2. To set the speed of the can moving in direction 3 adjust the throttle Y5, refer to the table above.
3. To set the speed of the can moving in direction 2 adjust the throttle Y4.
4. To set the speed of the can carrier lower, turn the throttle screw clockwise.
5. To prevent the wear of the drive belt, set the speed of the can carrier as low as possible.

Result The speed of the can carrier is adjusted.

6.5.18 Correcting the Can Fill Quantity



```
42.3 Settings coiler I

Empty can warning              2000 m
Deliv. can change, card         150 m/min

Can filling correction            0 %
Can change sliver channel
  Blow-in time            1 min   0 s

Max. time, funnel to top        2.0 s
Length of sliver sep.  0.01 s   25 mm
Man. can change, lower speed     ON
115 Delivery normal
```

Figure 329: Data screen 42.3

Can filling correction	
Correction value	-10 % to +10 %

1. Examine the can filling and weigh the can.
   - ⇨ The can should be filled as the settings in data screen 10.1.
2. Enter the password level 2.
3. Select the data screen 42.3.
4. If the can is overfilled, decrease the value in the field **Can filling correction**.
   - ⇨ The can filling is corrected through a lower delivery speed.
5. If the can is insufficiently filled, increase the value in the field **Can filling correction**.
   - ⇨ The can filling is corrected through a higher delivery speed.

Result The can fill quantity is corrected.

6.5.19 Adjusting the Positioning Levers for the Can (CBA-5)

Can Diameter	1 000 mm
Distance 9	740.0 mm
Distance 10	5 mm

Prerequisites Make sure that the criteria are obeyed:

✓ The compressed-air supply is closed.

1. Remove the support 8 of the positioning levers 1 and 2.

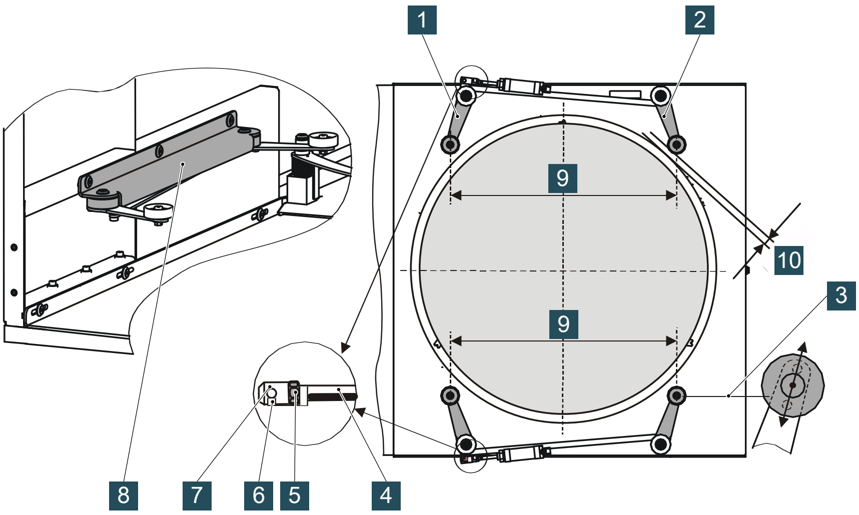


Figure 330: Adjustment of the positioning lever

2. Extend the piston rod 4 fully.
3. Loosen the nut 5.
4. Remove the clamp 6.
5. To set the distance 9 at the fork head 7, refer to the table above.
6. Install the clamp 6.
7. Tighten the nut 5.
8. To set the distance 10, adjust the roller 3 on the levers 1 and 2.
9. Adjust the speed of the positioning levers 1 and 2. See *Adjusting the Speed of the Positioning Levers* ▸ *324*

Result The positioning levers for the can are adjusted.

6.5.20 Adjusting the Positioning Levers for the Can (CBA 1200)

Can diameter	1 200 mm
Distance 5	966.0 mm
Distance 3	20 – 22 mm

1. Loosen the screws 1.

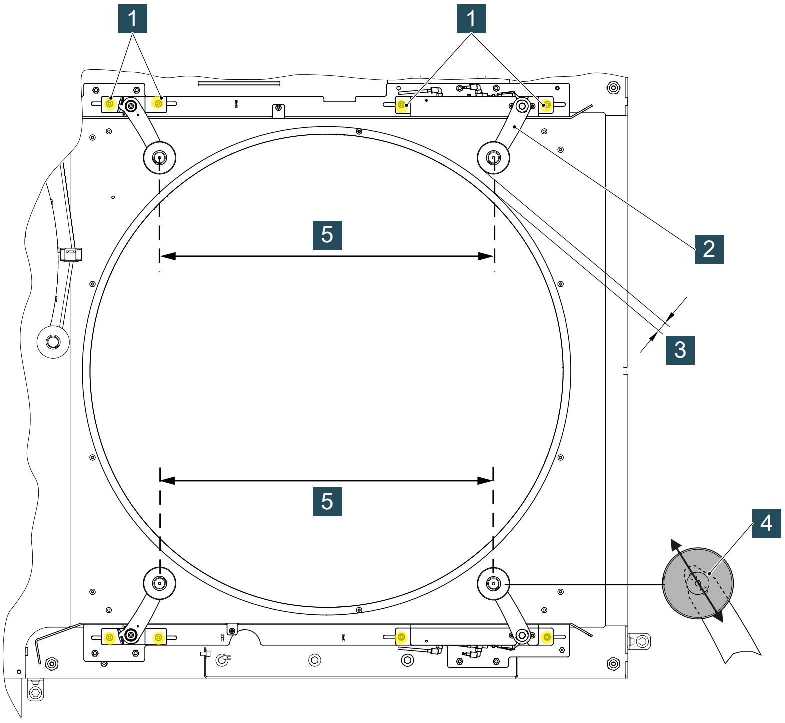


Figure 331: Adjustment of the positioning lever

⇨ The levers 2 can be moved.

2. Move the levers until the distance 5 is 966 mm.
3. Adjust the rollers 4 until the distance 3 is 22 – 24 mm.

Result The positioning levers for the can are adjusted.

6.5.21 Adjusting the Crossbar Rollers (CBA 1200)

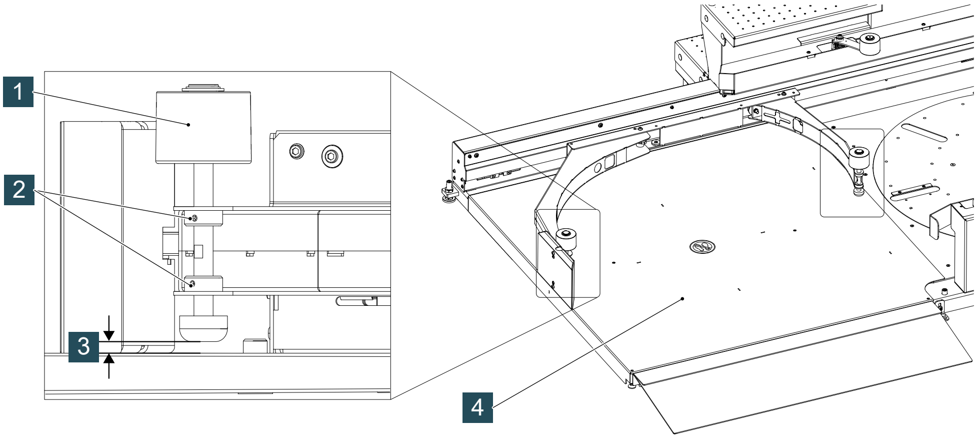


Figure 332: Crossbar roller

1. Loosen the screws 2.
2. Move the crossbar roller 1.

3. Make sure that the distance 3 between the bottom of the crossbar roller and the insert plate 4 is 10±1 mm.
4. Do the same procedure for the other crossbar roller.

Result The crossbar rollers are adjusted.

6.5.22 Adjusting the Speed of the Positioning Levers

Position of the Lever	Damping
Close	Connection 4 of the valve
Open	Connection 2 of the valve

Position of the Lever	Speed
Close	Slow
Open	Fast

1. Remove the cover 2.

   ⇨ Throttles are open to access.

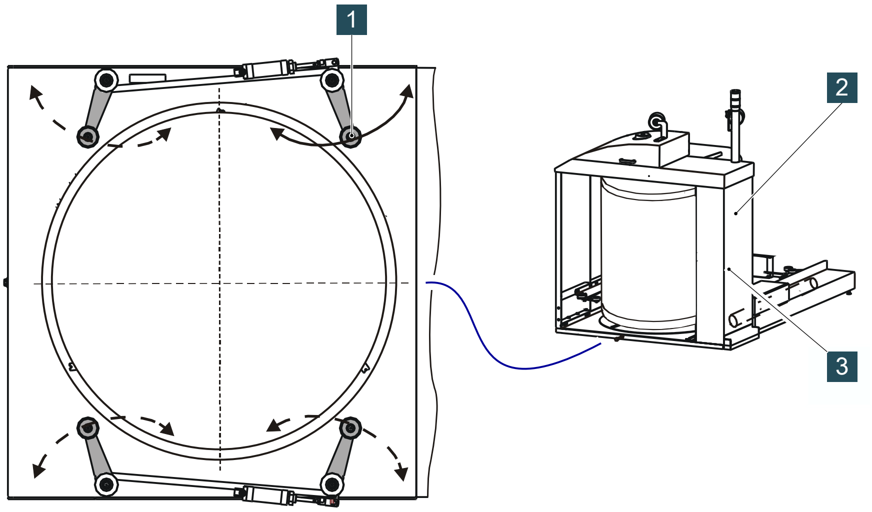


Figure 333: Adjustment of the positioning lever

2. To select the correct throttle of the air line to the throttle valve Y1 3, refer to the above table.

   ⇨ The compressed air is controlled.
3. Turn the throttle screw clockwise.

   ⇨ The speed is decreased.
4. To adjust the speed of the positioning lever 1, refer to the above table.
5. Install the cover 2.

Result The speed of the poisoning lever is adjusted.

6.5.23 Adjusting the Magnetic Switch for the Change Carriage Drive (CBA-5)

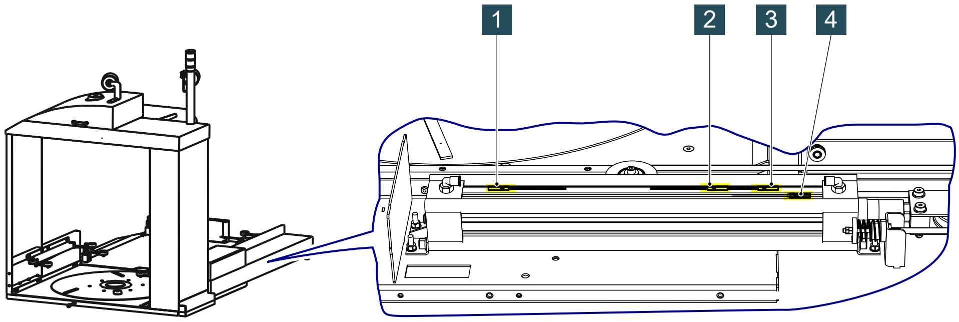


Figure 334: Adjustment of the magnetic switch

1	Magnetic switch B9, for the change trolley monitoring, rear.	2	Magnetic switch B8, for the sliver cutting operation.
3	Magnetic switch B16, for the near positioning lever	4	Magnetic switch B10, for the change trolley monitoring, front.

Distance 7 for Different Can Diameter	
750 m, 800 mm, 1 000 mm can diameter	72 mm
600 mm can diameter	107 mm

Prerequisites Make sure that the criteria are obeyed:

- ✓ The time for the sliver cutting operation is adjusted. See *Setting the Time of the Sliver Cutting* ▸ *303*
- ✓ The compressed-air supply is closed.

WARNING

Moving parts!

Injury because of pneumatically operated machine section

▶ Close the opening of the compressed air system.

1. Move the magnetic switch B9 1, to adjust the distance 5 to 40 mm.

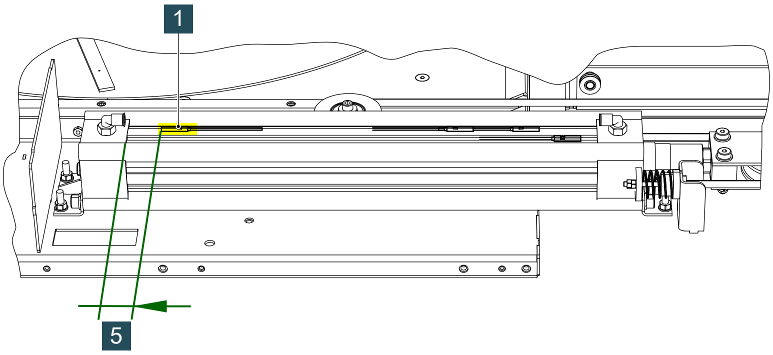


Figure 335: Adjustment of the magnetic switch B9

2. Move the magnetic switch B10 **4**, to adjust the distance **6** to 20 mm.

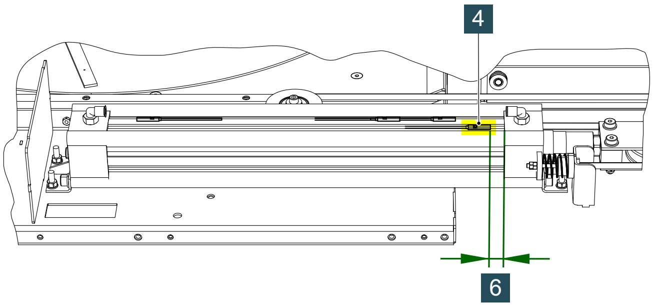


Figure 336: Adjustment of the magnetic switch B10

3. Move the magnetic switch B16 **3**, to adjust the distance **7** in accordance with the table above.
   - ⇨ During the can change process: the positioning levers are closing, as soon as the empty can reaches the rotary plate.
4. Execute a can change and observe the process.

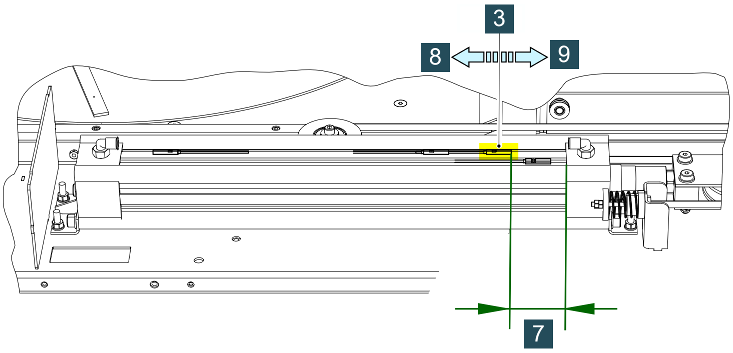


Figure 337: Adjustment of the magnetic switch B16

5. Move the magnetic switch **3** in the direction of **8** if the positioning levers close too quickly.
6. Move the magnetic switch **3** in the direction of **9** if the positioning levers close too late.

Result The magnetic switches for the can trolley drive are adjusted.

6.5.24 Adjusting the Position Sensors of the Can Changer (CBA 1200)

Distance	Value (mm)
A	428
B	989
C	459

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the screws at the position sensor 4.

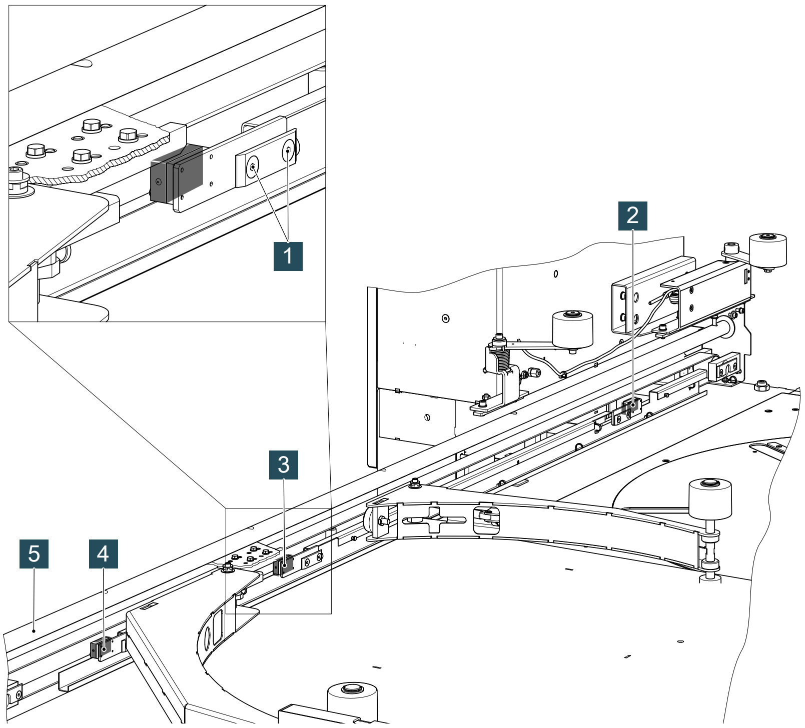


Figure 338: Position sensors of the can changer

2. Set the distance A between the position sensor 4 and the left side of the housing 5 to 428 mm.

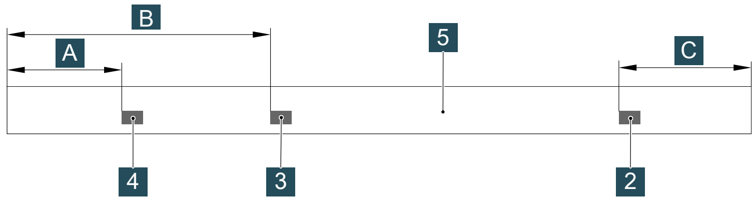


Figure 339: Position sensors

3. Tighten the screws at the position sensor 4.

4. Set the distance B between the position sensor 3 and the left side of the housing 5 to 989 mm in the same procedure of the steps 1 to 3.
5. Set the distance C between the position sensor 2 and the right side of the housing 5 to 459 mm in the same procedure of the steps 1 to 3.

Result The position sensors of the can changer are adjusted.

6.5.25 Adjusting the Empty-Can Indicator (CBA 1200)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the screws 1 and 2 at the empty-can indicator 3.

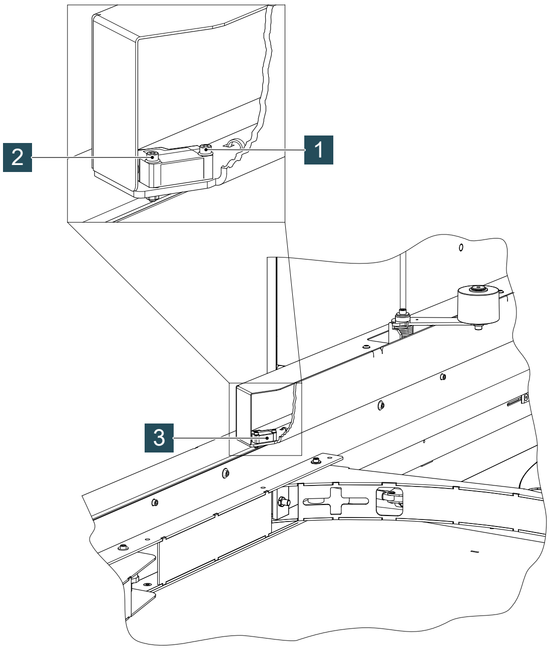


Figure 340: Spare can indicator

2. Turn the empty-can indicator 3 around the screw 1 until the empty-can indicator 3 is at the correct position.
3. Tighten the screws 1 and 2 at the empty-can indicator 3.

Result The empty-can indicator is adjusted.

6.5.26 Adjusting the Sensor on the Main Motor Shaft (CBA 1200)

Orientation The sensor B60 on the main motor shaft works for the frequency converter.

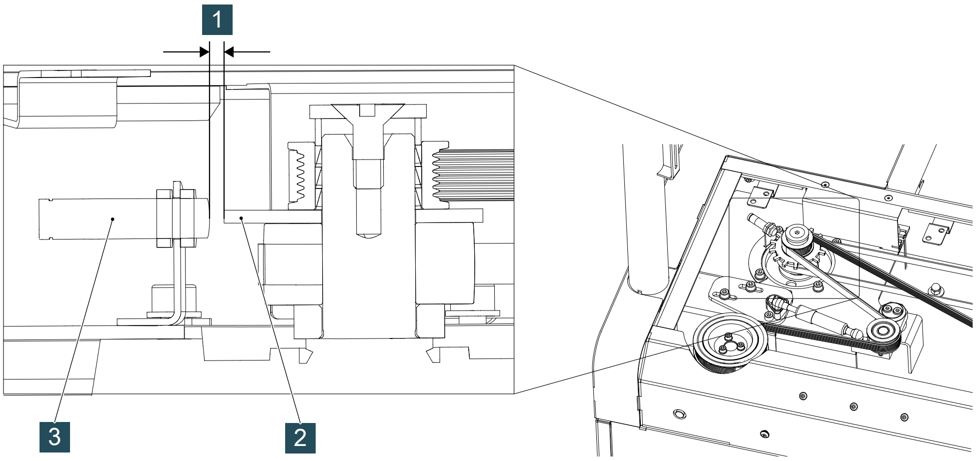


Figure 341: Sensor on the main motor shaft

1. Adjust the sensor B60 3.
2. Make sure that the distance 1 between the sensor 3 and the pulse counter 2 is 2±1 mm.

Result The sensor on the main motor shaft is adjusted.

6.5.27 Adjusting the Sensor for Position of Sliver Duct (CBA 1200)

Orientation The sensor B18 is used to sense the position of the sliver duct. Indication of the position is necessary for correct sliver cutting. Then the full can is replaced.

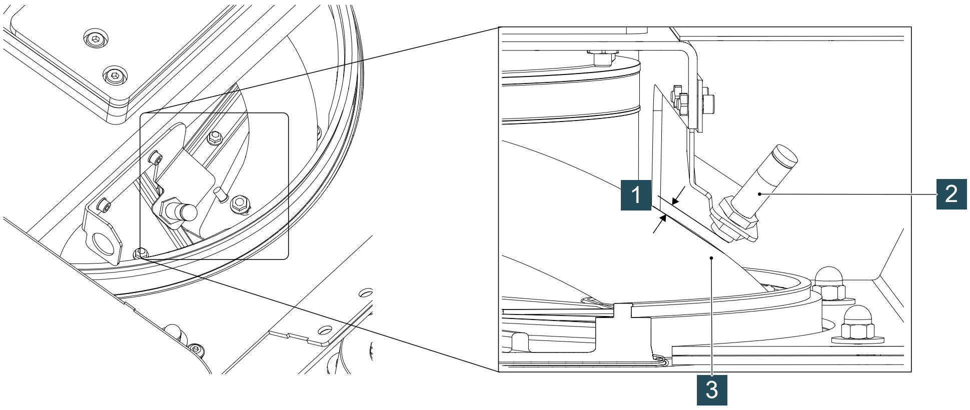


Figure 342: Sensor for the sliver duct

1. Adjust the sensor B18 2.
2. Make sure that the distance 1 between the sensor 2 and the outer surface 3 of the sliver duct is 12±2 mm.

Result The sensor for position of sliver duct is adjusted.

6.6 Starting the Machine

This section contains the information about the procedures to start the machine.

6.6.1 Examining the Machine

Orientation This section contains the information about how to examine the machine before the machine is started.

1. Make sure that the personnel are at the safe distance from the machine.
2. Make sure that the safety devices of the machine are in operation.
3. Remove all tools and aids from the machine.

Result The machine is examined.

6.6.2 Preparing the Sliver Coiling Device for the Production

1. Close the calendar rollers.
2. Close the hood.
3. Put in an empty can.

Result The coiler is prepared for the production.

6.6.3 Selecting the Automatic Mode

1. Select the data screen 80.1 **Operating mode switchover**.
2. Select the **Automatic mode**.
3. Set the key switch for card flat grinding to the position **I**.

Result The automatic mode is set.

6.6.4 Closing the Doors

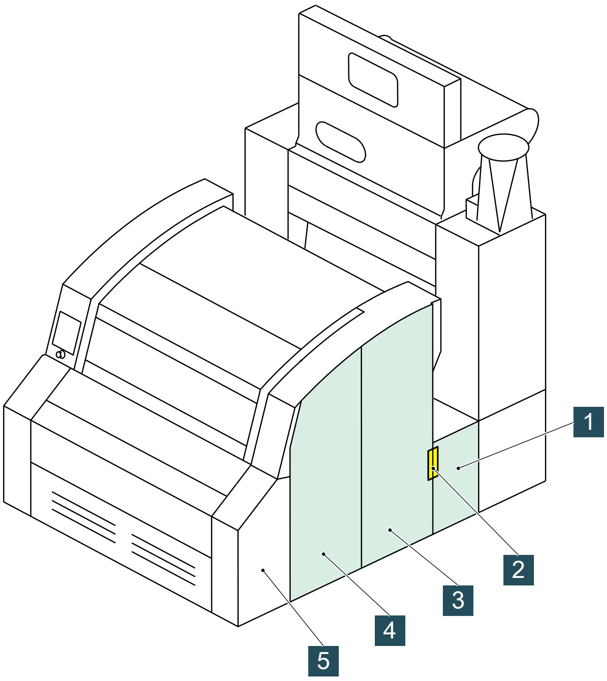


Figure 343: Right side doors of the machine

1. Close the door 1.
2. Close the door 3.
3. Close the door 4.

   ⇨ The door 1 is mechanically locked with the locking mechanism 2. See *Safety Devices at the Doors ▸ 34*

4. Close the door 5.
5. Unlock the emergency stop button.

Result The doors at the card are closed.

6.6.5 Setting the Main Switch to the Position ON

Prerequisites Make sure that the criteria are obeyed:

✓ All the doors and covers are closed.

1. Set the main switch to the position ON.

   ⇨ The operating state LED comes on.

2. To open the main screen, tap the main screen key.
3. Select the necessary language in the data screen 40.3 **Settings languages**.
4. If the fault LED is on, correct all faults messages.

   ⇨ The fault LED comes off.

   ⇨ The message **Ready to start** is shown.

Result The main switch is set to the position ON.

6.6.6 Starting the Compressed–Air Supply

1. Open the electric cabinet door to get access to the pneumatic primary valve.

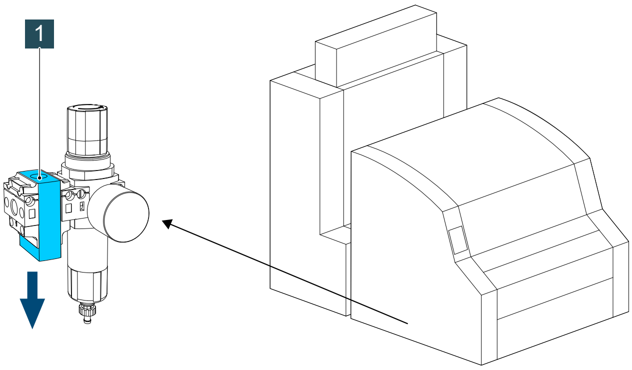


Figure 344: Compressed-air valve

2. Lower the slider 1 of the pneumatic primary valve.

Result The compressed–air supply is started.

6.6.7 Setting the Pressure Regulator

1. Move out the control cabinet.
   ⇨ The pneumatic primary valve is accessible.
2. Move up the control screw 1.

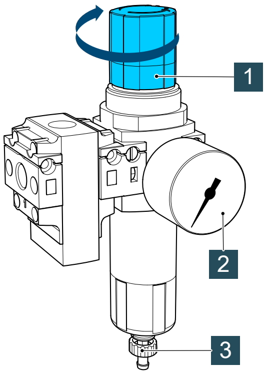


Figure 345: Adjustment of the work pressure for the card

3. Measure the pressure on the manometer 2.
4. Make sure that the work pressure for the card is set to 6.0 bar.
5. Turn the control screw 1 clockwise if the pressure is low.
6. Turn the control screw 1 counterclockwise if the pressure is high.
7. Push down the control screw 1, if the pressure is correct.
   ⇨ The control screw 1 is locked.

8. Turn the drain plug 3 clockwise.
   - ⇨ The condensed water is drained.
9. Turn the drain plug 3 counterclockwise.
   - ⇨ The drain valve is closed.
   - ⇨ The work pressure for the card is adjusted.

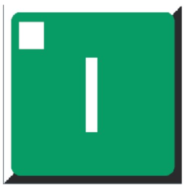
Result The pressure regulator is set correctly.

6.6.8 Starting the Machine

Cylinder Ramp-up Time	
Cylinder drive with pulley	≤ 150 s
Cylinder drive with frequency converter Cylinder speed: 500 rpm	≤ 45 s
Cylinder drive with frequency converter Cylinder speed: 900 rpm	≤ 80 s

Prerequisites Make sure that the criteria are obeyed:

- ✓ **Automatic mode** is set in the data screen 80.1.



1. Tap the start key.
   - ⇨ The LED on the start button flashes, when the speed of the cylinder and the licker-in is the same.
   - ⇨ The cylinder motor starts.
   - ⇨ At a cylinder rotational speed of ≤200 rpm, the licker-in motor starts.
   - ⇨ The LED on start key is illuminated, work speed has been reached.
2. If the machine does not start, notify the supervisor.
3. If the power failure happens during the start phase, restore the grid power.
   - ⇨ When grid power is restored, the cylinder can be restarted where it was before standstill.

Result The machine is started.

6.6.9 Starting the UNIcontrol Feed System

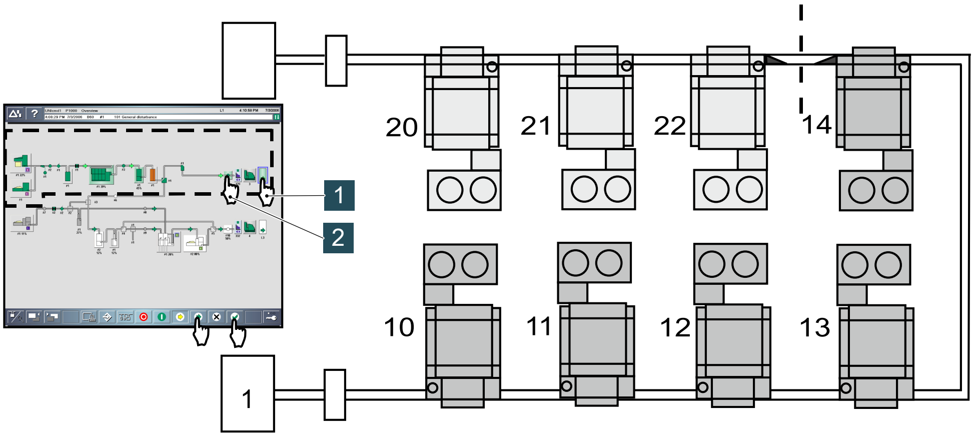


Figure 346: UNIcontrol feed system

Orientation Even if all the cards in a line are not required, the last cards of this line must still be placed in service and kept in operation.

If the system is started incorrectly, then blockages in the material transport pipes may occur as a result.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The card line is ready for production.
- ✓ The cards of the appropriate line are started.
- ✓ The doffers remain switched off.

1. Select the card line buy pressing the button 2 on the UNIcontrol interface.
2. Start the material flow by pressing the button 1 on the UNIcontrol interface.

   ⇨ The material flow is started for the card line.
3. Put the line cards into operation.
4. Start with the last card 14 of the respective line, and then 13, 12, 11, 10.

Result The UNIcontrol feed system is started.

6.6.10 Starting the Production

Orientation This section contains the information about how to start the production at creep speed and at high speed.

Starting the Production (Doffer at Creep Speed)

1. When the message **Chute ready for filling** is shown, tap the production start key.

   ⇨ The LED on the production start key flashes (The LED flashes only at creep speed).

   ⇨ The card chute starts to be filled.

2. When the message **Production ready** is shown, tap the production start key again.
   - ⇨ The LED on the production start key flashes.
   - ⇨ The production at creep speed is started.

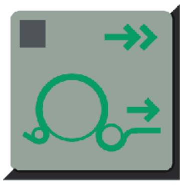
Guiding the Sliver into the Coiler

1. Draw in the card sliver and guide it up to the coiler
   - ⇨ Light barrier on the sliver coiling device senses the card sliver.
   - ⇨ If a fault occurs when sliver is pulled into the sliver coiling device, the card continues to operate at creep speed.
   - ⇨ If the time to correct the fault is more than 3 minutes, the doffer stops.

Starting the Production (Doffer at High Speed)

Prerequisites Make sure that the criteria are obeyed:

- ✓ The machine is operating at creep speed.
- ✓ The card sliver is put into the coiler.
- ✓ The automatic acceleration is switched on.



1. Tap the production start key.
   - ⇨ LED on the production start key comes on.
   - ⇨ The machine operates to high speed for production.
   - ⇨ If the sliver is not sensed between the disk rollers, the doffer stays at creep speed.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The machine is operating at creep speed.
- ✓ The card sliver is put into the coiler.
- ✓ No automatic acceleration is in high speed.

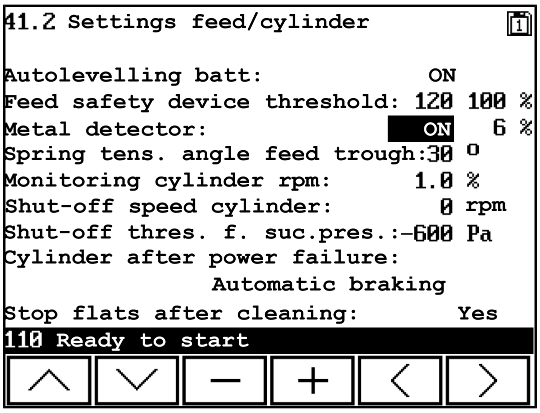
1. Tap and hold the production start key.
   - ⇨ The LED on the production start key comes on.
   - ⇨ The machine operates to high speed for production.
   - ⇨ If the light scanner senses the sliver for approximately 3 seconds, the doffer operates at the specified delivery speed.
   - ⇨ If the sliver is not sensed between the disk rollers, the doffer stays at creep speed.

Selecting the Automatic Acceleration

1. Select the data screen 41.1.
2. Switch on the function in the field **Automatic acceleration**.

6.6.11 Starting the Function of the Metal Detector

1. Enter the password level 2.
2. Select the data screen 41.2 **Settings feed/cylinder** .



```
41.2 Settings feed/cylinder

Autolevelling batt:                ON
Feed safety device threshold: 120 100 %
Metal detector:                    ON   6 %
Spring tens. angle feed trough:30 °
Monitoring cylinder rpm:        1.0 %
Shut-off speed cylinder:          0 rpm
Shut-off thres. f. suc.pres.:-600 Pa
Cylinder after power failure:
                Automatic braking
Stop flats after cleaning:          Yes
110 Ready to start
```

Figure 347: Data screen 41.2

3. Select **ON** and 6% in the field **Metal detector:**.

Result The function of the metal detector is started.

6.7 Pulling the Material into the Machine

This section contains the information about how to put the material into the machine.

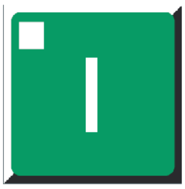
6.7.1 Putting the Batt into the Feed Roller

⚠ **CAUTION**

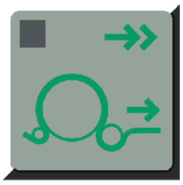
Turning parts!

Finger injury because of the turning parts

▶ Put hands some distance from the feed trough and the feed roller.



1. Tap the start key.



2. Tap the production start key.
3. Move the batt 1 out of the AEROfeed card shaft maximum 10 cm in front of the feed roller 3.

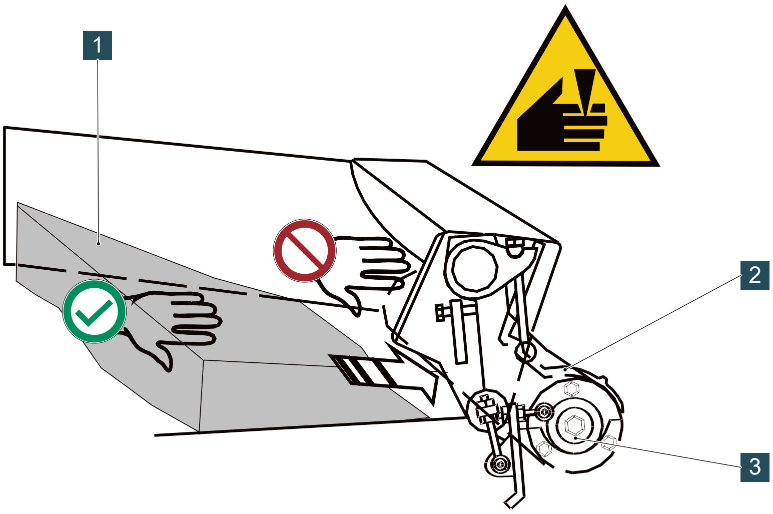


Figure 348: Batt into feed roller

4. Tap the production start key again.

   ⇨ The doffer stops.

5. **CAUTION! Turning parts! Finger injury because of the turning parts.** Make the batt 3 into a wedge shape with the hands.

6. Push the production start button again.

   ⇨ The doffer is started again.

   ⇨ The batt is pulled between the feed trough 2 and the feed roller 3.

Result The batt is put into the feed roller.

6.8 Quality Monitoring

This section contains the information about the quality monitoring.

6.8.1 Integrated Card Sliver Monitoring

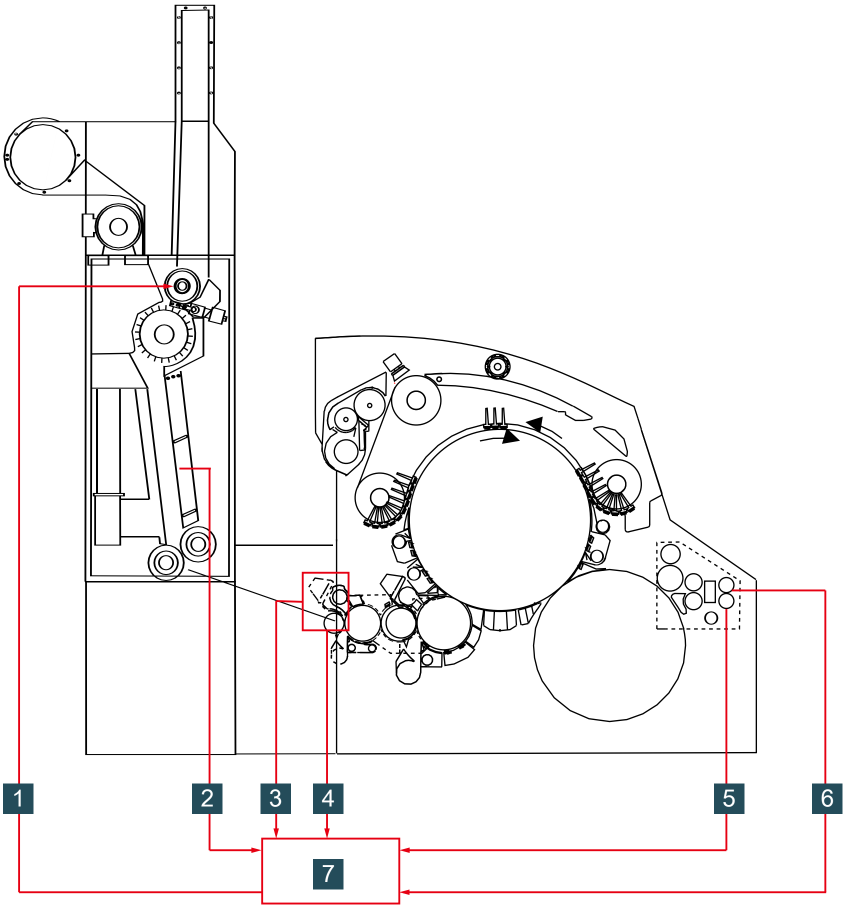


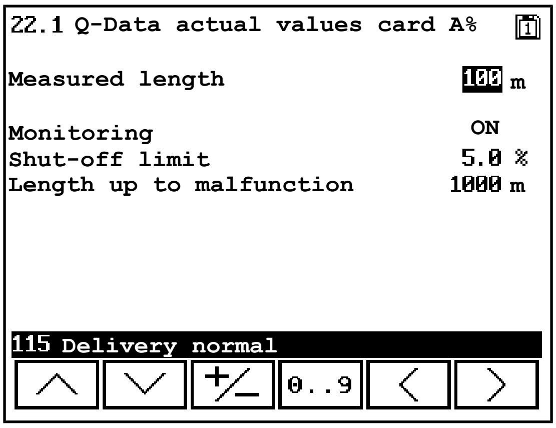
Figure 349: Integrated card sliver monitoring

1	Delivery signal: chute feeding speed	2	Input signal: chute filling level
3	Infeed signal: batt thickness	4	Delivery signal: feed roller speed
5	Infeed signal: delivery speed	6	Input signal: sliver count
7	Control unit for signal processing		

Short-term leveling The feed trough measures the thickness of the supplied batt. The speed of the card feed roller adjusts automatically according to the values determined, thus a constant sliver count is got.

Long-term leveling The sliver count is measured by a disk roller pair at the sliver delivery. The measured signals are sent and used to control the feeding system.

6.8.2 Adjusting the Shut-Off Limit for A%



```
22.1 Q-Data actual values card A%

Measured length                100 m

Monitoring                      ON
Shut-off limit                 5.0 %
Length up to malfunction      1000 m

115 Delivery normal
```

Figure 350: Data screen 22.1

Measured length	
Range	25 – 150 m
Default	100 m
Tendency: longer	Fewer stops
Tendency: shorter	More stops

Monitoring	
Default	ON

Shut-off limit	
Range	0.5 – 10 %
Default	10 %
Tendency: high	Fewer stops
Tendency: low	More stops

Length up to malfunction	
Range	0 – 3 000 m
Default	200 m
Tendency: longer	Fewer stops
Tendency: shorter	More stops

1. Enter the password level 2.
2. Select the data screen 22.1.
3. Enter the length in the field Measured length.
4. Select ON in the field **Monitoring**.
5. Enter the tolerance in the field **Shut-off limit**.

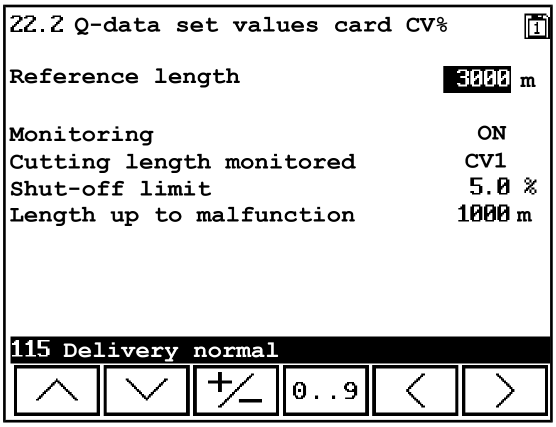
⇨ If the set shut-off limit A% is exceeded, the delay **Length up to malfunction** starts.

6. Enter the delay in the field **Length up to malfunction**.

⇨ If an overrun continues longer than the delay, the production stops.

Result The shut-off limit for A% is adjusted.

6.8.3 Adjusting the Shut-Off Limit for CV%



```
22.2 Q-data set values card CV%

Reference length                    3000 m

Monitoring                           ON
Cutting length monitored            CV1
Shut-off limit                      5.0 %
Length up to malfunction           1000 m



115 Delivery normal
```

Figure 351: Data screen 22.2

Reference length	
Range	300 – 10 000 m
Default	3 000 m
Tendency: longer	Fewer stops
Tendency: shorter	More stops

Monitoring	
Default	ON

Cutting length monitored	
Default	CV100

Shut-off limit	
Range	0.5 – 10 %
Default	10 %
Tendency: low	More stops
Tendency: high	Fewer stops

Length up to malfunction	
Range	0 – 3 000 m

Length up to malfunction	
Default	0 m
Tendency: longer	Fewer stops
Tendency: shorter	More stops

1. Enter the password in the level 2.
2. Select the data screen 22.2.
3. Enter the length in the field **Reference length**.
4. Select the cut length (CV1, CV3, CV5, CV7, CV10 or CV100) in **Cutting length monitored**.
5. Enter the tolerance in the field **Shut-off limit**.
   - ⇨ If the set shut-off limit CV% is exceeded, the delay **Length up to malfunction** starts.
6. Enter the delay in the **Length up to malfunction**.
   - ⇨ If an overrun continues longer than the delay, the production stops.

Result The shut-off limit for CV% is adjusted.

6.8.4 Correcting the CV% Values

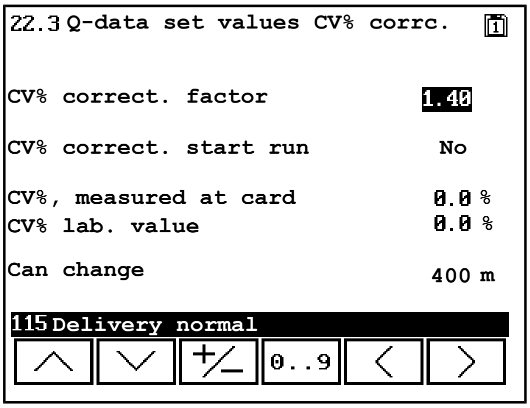
Prerequisites Make sure that the criteria are obeyed:

- ✓ The card is in production without interruption for at least 60 minutes.
- ✓ 2 empty cans are in the ready position.

1. Enter the password in the level 2.
2. In data screen 41.1, switch on the function **Levelling sliver weight**.
3. In data screen 41.2, switch on the function **Autolevelling batt**.
4. Start the production (doffer at high speed).
   - ⇨ Fast speed: LED on the production start key is illuminated.
   - ⇨ Production is at high speed.
   - ⇨ Key for emptying the line is not activated.
   - ⇨ Key for emptying the chute and card is not activated.
5. After a can change wait until the can is filled to 1 000 meters.

Starting the Material Withdrawal

1. Select the data screen 22.3.



22.3 Q-data set values CV% corrc.

CV% correct. factor 1.40

CV% correct. start run No

CV%, measured at card 0.0 %
CV% lab. value 0.0 %

Can change 400 m

115 Delivery normal

Figure 352: Data screen 22.3

2. Select **Yes** in the field **CV% correct. start run** to start the sequence.
   - ⇨ Material extraction for the laboratory measurement has begun.
   - ⇨ A can change occurs automatically.
   - ⇨ 400 m of sliver are delivered, then the can is changed automatically.
3. Monitor the can change.
4. Separate the sliver manually if necessary.
5. Measure CV% value of the produced sliver in the laboratory.
6. Enter the value that is determined in the laboratory in the field **CV% lab. value**.
   - ⇨ The CV% correct. factor is calculated through the difference of the values between CV%, measured at card and **CV% lab. value**.
   - ⇨ All CV% values determined by the card are now corrected with the correction factor.
   - ⇨ As a result, all CV% values shown on the card are same to the related laboratory values.

6.8.5 Adjusting the Shut-Off Limit for the Spectrogram

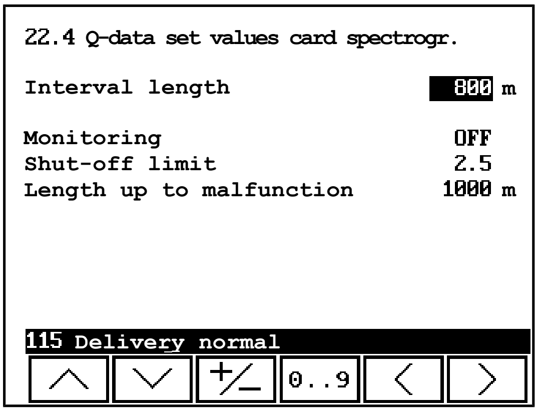
Interval length	
Range	400 – 10 000 m

Shut-off limit	
Range	1.4 – 5 %
Tendency: Relatively low	Fewer stops
Tendency: Relatively high	More stops

Length up to malfunction	
Range	0 — 3 000 m

Length up to malfunction	
Default	≈ 1 500 m
Tendency: Shorter	More stops
Tendency: Longer	Fewer stops

1. Enter the password for the level 2.
2. Select the data screen 22.4.



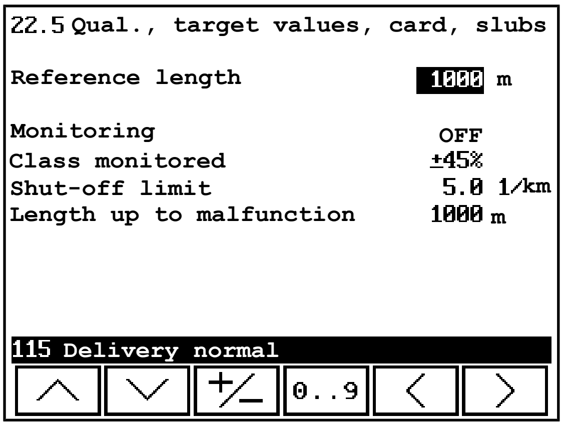
```
22.4 Q-data set values card spectrogr.

Interval length                      800 m

Monitoring                           OFF
Shut-off limit                       2.5
Length up to malfunction            1000 m

115 Delivery normal
```

Figure 353: Data screen 22.4

3. Enter the length in the field **Interval length**.
4. Enter the tolerance in the field **Shut-off limit**.
5. Enter the delay in the field **Length up to malfunction**.

Result The shut-off limit for the spectrogram is adjusted.

6.8.6 Adjusting the Shut-Off Limit for Slubs



```
22.5 Qual., target values, card, slubs

Reference length                 1000 m

Monitoring                        OFF
Class monitored                  ±45%
Shut-off limit                    5.0 1/km
Length up to malfunction         1000 m

115 Delivery normal
```

Figure 354: Data screen 22.5

Reference length	
Range	300 – 10 000 m

Reference length	
Default	≈ 1 000 m
Tendency: shorter	More stops
Tendency: longer	Fewer stops

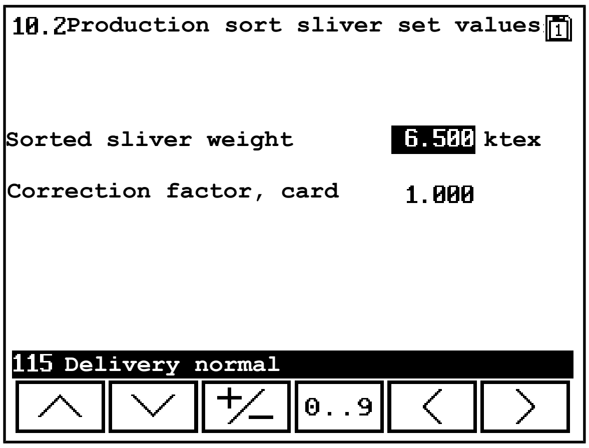
Shut-off limit	
Range	0.5 – 20
Tendency: relatively high	More stops
Tendency: relatively low	Fewer stops

Length up to malfunction	
Range	0 – 3 000 m
Tendency: shorter	More stops
Tendency: longer	Fewer stops

1. Enter the password in level 2.
2. Select the data screen 22.5.
3. Enter the length in the field **Reference length**.
4. Select **ON** in the field **Monitoring**.
5. Enter the class in the field **Class monitored**.
6. Enter the tolerance in the field **Shut-off limit**.
7. Enter the delay in the field **Length up to malfunction**.

Result The shut-off limit for slubs is adjusted.

6.8.7 Correcting the Sliver Weight



```
10.2Production sort sliver set values

Sorted sliver weight        6.500 ktex

Correction factor, card     1.000

115 Delivery normal
```

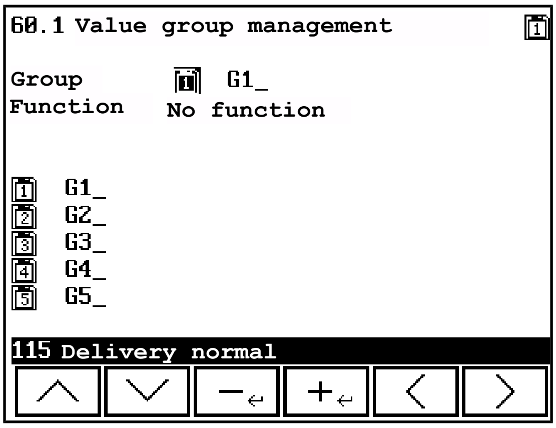
Figure 355: Data screen 10.2

1. Enter the password in level 2.
2. Put the card in operation at normal speed for 15 minutes.

3. Change the can. See *Changing the Can* ▸ *353*
4. Remove the top material layer.
5. Take the samples.
6. Sort 10 meters for 5 times.
7. Weigh the produced sliver in laboratory.
8. If the actual sliver weight is different from the target sliver weight, enter the actual weight in Sorted sliver weight.
   - ⇨ The system calculates the correction factor.
   - ⇨ The **Correction factor, card** corrects the sliver weight.
9. If the actual sliver weight is different from the target sliver weight, Record the set **Correction factor, card** that is in the range of 0.5 to 1.5.
   - ⇨ The is **Correction factor, card** corrected.
   - ⇨ If the data loss occurs the actual **Correction factor, card** is kept as back-up and is entered again.

Result The sliver weight is corrected.

6.8.8 Setting the Production Value Groups



60.1 Value group management

Group 1 G1_
Function No function

1 G1_
2 G2_
3 G3_
4 G4_
5 G5_

115 Delivery normal

Figure 356: Data screen 60.1

1. Enter the password level 2.
2. Select the data screen 60.1.

Selecting the production value group

1. Enter the necessary group number from 1 to 5 in the field **Group**.
2. Select **Switch over** in the field **Function**.
   - ⇨ In all data screens with production values, the number of the selected values group is shown in the upper right position of the screen. (Production values are in the menus 10, 22, 41, 42 and 60.)

⇨ Production value groups are selected.

Naming the Value Group

1. Select **Change name** in the field **Function**.
2. Enter an applicable name for the value group.
3. Tap the enter key to confirm the entry.

   ⇨ The new name is shown on the data screen.

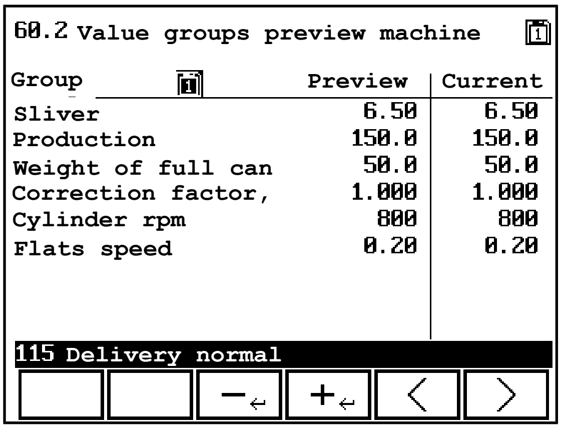
Putting the Production Values into a New Group

1. Select the production value group.
2. Name a production value group.
3. Select **Load with default** in the field **Function**.

   ⇨ The default values are put into the selected group.
4. Select the function from **Load with 1** to **Load with 5** in the field **Function**.

   ⇨ Initial production values are loaded into a new group.

Comparing the Production Values of 2 Groups



60.2 Value groups preview machine

Group	Preview	Current
Sliver	6.50	6.50
Production	150.0	150.0
Weight of full can	50.0	50.0
Correction factor,	1.000	1.000
Cylinder rpm	800	800
Flats speed	0.20	0.20

115 Delivery normal

Figure 357: Data screen 60.2

1. Select the production value group in the data screen 60.1.

   ⇨ The values of the selected group are shown in the left column.
2. Enter password level 2.
3. Select data screen 60.2.
4. Enter the correct time base in the field **Group**.

   ⇨ The values of the selected group are shown in the left column.

   ⇨ The values of the 2 groups can be compared.
5. Compare the production values.
6. Select the data screen 60.3 for the quality.

7. Select the data screen 60.4 for the optional equipment.
8. Select the data screen 60.30 for the extended values 1.
9. Select the data screen 60.31 for the extended values 2.
10. Select the data screen 60.33 for the extended values 3.
    ⇨ The 2 group values are compared.

Changing the Production Values in Value Groups

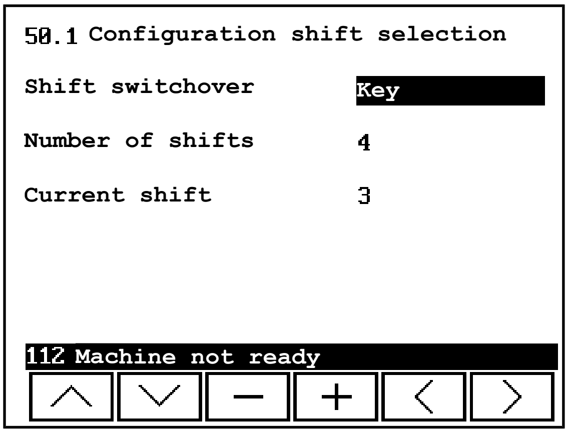
1. Select the production value group.
2. Select one of the data screens with production values.
    ⇨ In all data screens with production values, the number of the selected values group is shown in the upper right position of the screen. (Production values are in the menus 10, 22, 41, 42 and 60.)
3. Set the production values as necessary.
    ⇨ The production values will be saved in the selected value group.
4. Change more production values in the value groups. (Menus 10, 22, 41 and 42)
    ⇨ The production values in the value group are changed.

Result The production value groups are set.

6.8.9 Shift Schedule

This section contains the information about the shift schedule.

6.8.9.1 Selecting the Shift Planning Properties



```
50.1 Configuration shift selection

Shift switchover          Key

Number of shifts          4

Current shift             3



112 Machine not ready
```

Figure 358: Data screen 50.1

Shift switchover	
Key	Manual switchover in the data screen 50.1.

Shift switchover	
Shift schedule	Automatic switchover according to the schedule in data screen 50.2.

1. Enter the password in the level 2.
2. Select the data screen 50.1.
3. Select the type of shift changeover in the field **Shift switchover**.
4. Enter the quantity between 1 and 8 in the field **Number of shifts**.
5. If the machine is connected to the SPIDERweb, select **Yes** in the field **Partial shift report**.

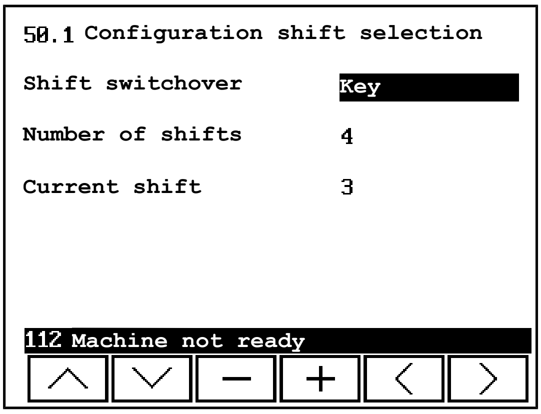
   ⇨ The current shift data will be completed, but the shift is not switched.
6. If the machine is not connected to the SPIDERweb, select **No** in the field **Partial shift report**.

   ⇨ Data of the current shift is not completed.

Result The shift planning properties are selected.

6.8.9.2 Changing Over a Shift Manually

1. Enter password level 2.
2. Select data screen 50.1.



```
50.1 Configuration shift selection

Shift switchover          Key

Number of shifts          4

Current shift             3

112 Machine not ready
```

Figure 359: Data screen 50.1

3. Select the type of shift changeover **Key** in the filed **Shift switchover**.

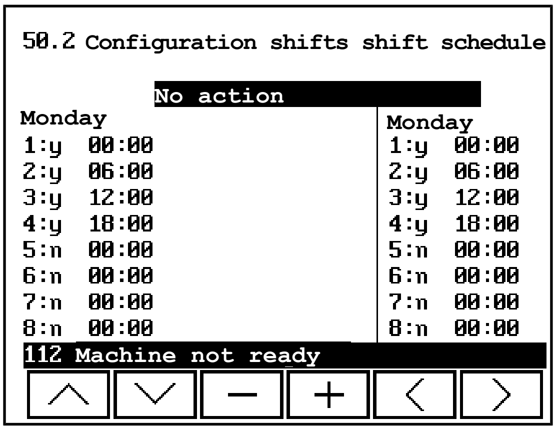
   ⇨ The shift can be manually switched.
4. Select the desired shift from shift 1, shift 2, shift 3…shift 8 with the plus key (+) or minus key (-) in the field **Current shift**.

   ⇨ The current shift is selected.

   ⇨ The selected current shift is displayed on the main screen.

Result Shift is changed manually.

6.8.9.3 Setting the Shift Schedule



```
50.2 Configuration shifts shift schedule

             No action
Monday                      Monday
1:y  00:00                  1:y  00:00
2:y  06:00                  2:y  06:00
3:y  12:00                  3:y  12:00
4:y  18:00                  4:y  18:00
5:n  00:00                  5:n  00:00
6:n  00:00                  6:n  00:00
7:n  00:00                  7:n  00:00
8:n  00:00                  8:n  00:00
112 Machine not ready
```

Figure 360: Data screen 50.2

Prerequisites Make sure that the criteria are obeyed:

✓ In data screen 50.1, **Shift schedule** is selected in the field **Shift switchover**.

1. Enter the password in the level 2.
2. Select the data screen 50.2.

Setting the Shift Day Schedule

Shift active in the daily schedule	
Value: **y**	Layer is active
Value: **n**	Layer is not present

1. Select the desired weekday at the left side of the data screen.
   - ⇨ The day shift schedule will be displayed for the selected weekday (bottom left).
   - ⇨ This day shift schedule can be edited.
2. Activate or stop the shift in the lines1 to 8 at the left side of the data screen.
3. Enter the start time for the active shifts.

Coping a Day Shift Schedule

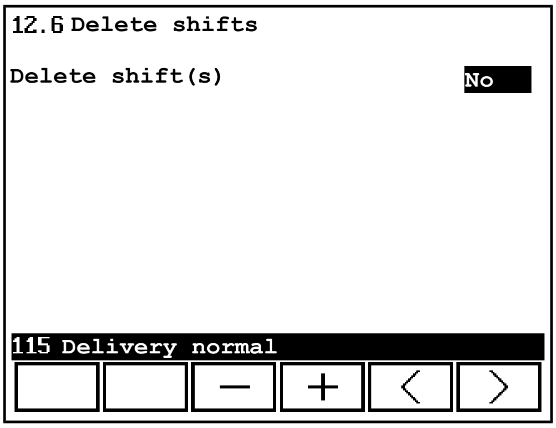
Conditions	Actions
Copying the current day shift schedule into all days	– In the first line of data screen 50.2, select **copy to: all days**.
Copying the current day shift schedule into a specific weekday	– On the right side of the second line of data screen 50.2, select the desired weekday. – In the first line of data screen 50.2, select **copy to**.

Conditions	Actions
No copy (each weekday is individually programmed on the left side of data screen 50.2.)	– In the first line of data screen 50.2, select **No action**.

1. Determine whether the current day shift schedule should be copied into other weekdays.
2. To do the correct actions, refer to the table above.
   ⇨ The day shift schedule is copied.

Result The shift schedule is set.

6.8.9.4 Deleting the Shift Data



12.6 Delete shifts

Delete shift(s) No

115 Delivery normal

Figure 361: Data screen 12.6 Delete shifts

1. Enter the password in the level 2.
2. Select the data screen 12.6.

Deleting All Shift Data

1. Select the **Delete shifts**.
2. Enter the selection **Yes**.
   ⇨ All shift data are deleted.

Deleting the Necessary Shift Data

1. Select the shift to delete.
2. Enter the selection **Yes**.
   ⇨ The selected shift data is deleted.

Result The shift data is deleted.

6.8.10 Monitoring the Production

This section contains the information about how to monitor the production.

6.8.10.1 Opening the Safetied Doors on the Right Side

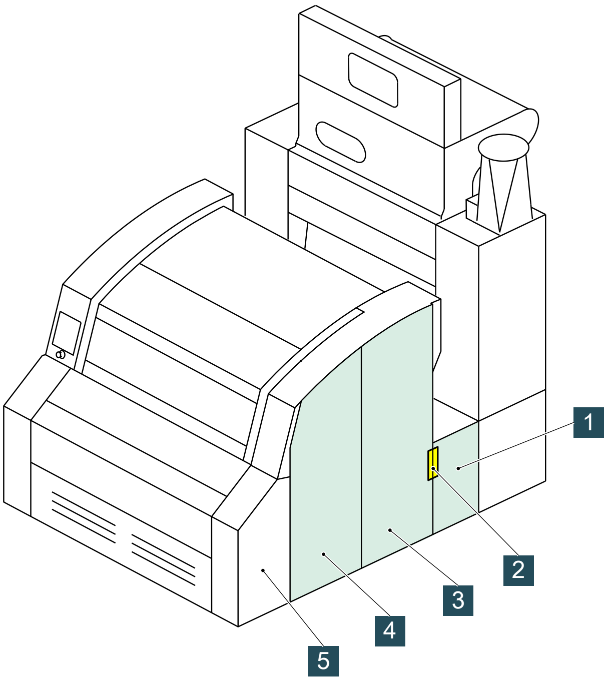


Figure 362: Right side doors

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position ON for minimum 60 seconds.
- ✓ The cylinder is at a standstill.

1. Push the emergency stop button.
   - ⇨ The door 3 and 4 are unlocked.
   - ⇨ If the emergency stop button is pushed during the self-test, the doors remain locked.
2. Open the doors 3 and 4.
   - ⇨ The locking mechanism 2 unlocks the door 1.
3. Open the door 1.
4. Open the door 5 with a tri-angular key.

Result The safetied doors are opened.

6.8.10.2 Opening the Safetied Doors in Power Outage

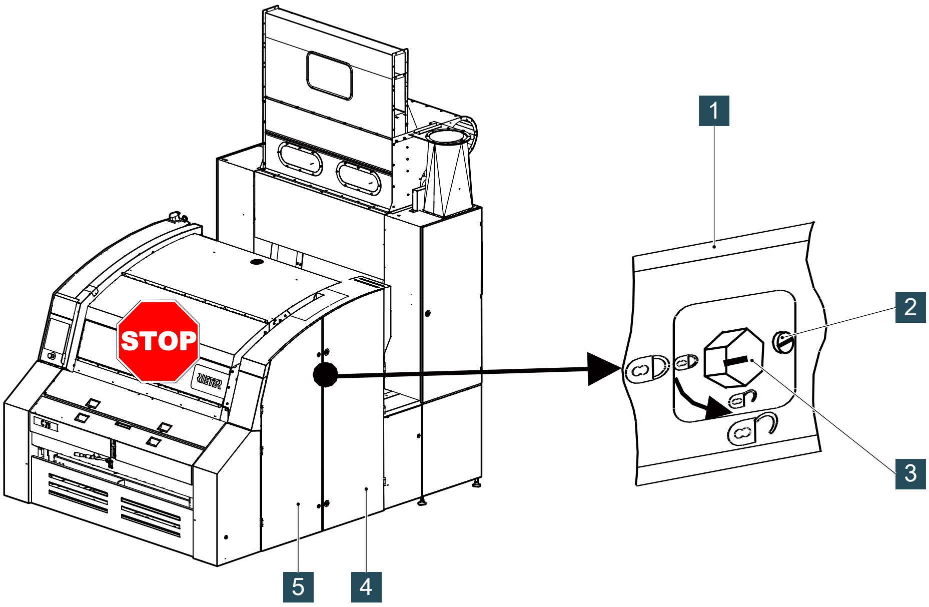


Figure 363: Secured door

WARNING

Moving machine components!

Risk of hand injury

- ▶ Do NOT touch the machine components that move.
- ▶ Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- ▶ When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

1. Wait until the shaft of the cylinder is at a standstill.
2. Set the main switch to the position OFF.
3. Padlock the main switch.
4. Loosen the screw 2 with approximately 6 turns.
5. Carefully turn the hexagonal screw 3 counterclockwise to the limit stop with a socket wrench.

   ⇨ The door lock 1 is unlocked.
6. Open the right side doors 4 and 5.
7. To lock the door lock 1 again, turn the hexagonal screw 3 clockwise.

Result The safetied doors are opened in power outage.

6.8.10.3 Changing the Can

1. Push the can change button.

   ⇨ LED comes on for 4 seconds before the can change occurs.

2. Make sure that the length counter is set to the programmed length.
3. Set the speed for manual can change if frequent faults occur during the replacement of the cans.
4. Set the speed for manual can change. See Doing the Configuration of the Sliver Coiling Device

Result The can is changed.

6.8.10.4 Removing Blockages in the Card Chute

WARNING

Rotating feed rollers!

Dangerous injuries because of the hands getting pulled in the rotating feed rollers.

▶ Do NOT go into the area of the feed roller.

Prerequisites Make sure that the criteria are obeyed:

✓ The machine is at a standstill.

1. Stop the feed system. See *Stopping the UNIcontrol Feed System* ▸ *361*
2. Stop the machine. See *Stopping the Machine* ▸ *359*
3. Open the window 2.

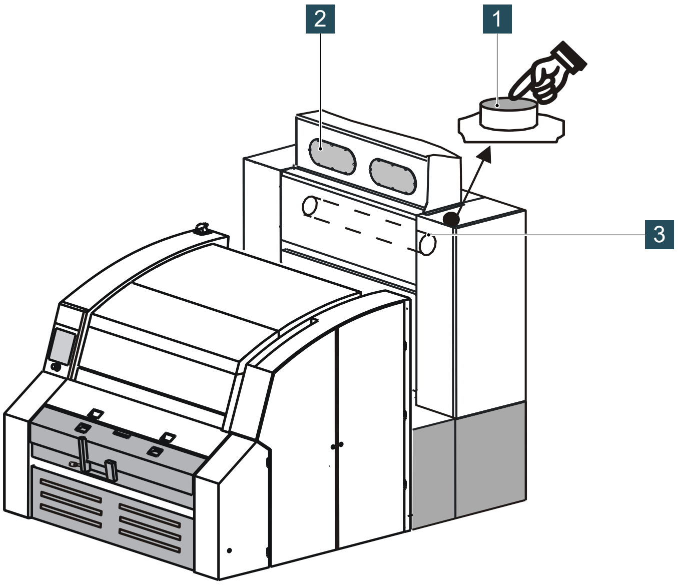


Figure 364: Removal of the blockage in the card chute

4. **WARNING! Rotating feed rollers! Dangerous injuries because of the hands getting pulled in the rotating feed rollers.** Remove the material above the feed roller 3.
5. Push and hold the feed roller button 1 at card chute for some time.
   - ⇨ The cylinder is stopped.
   - ⇨ The feed roller 3 turns rearward.
   - ⇨ The caught material moves out of the feed roller 3.
   - ⇨ If the feed roller button 1 is pressed too long, it may damage the seals on the feed roller 3.
6. Remove the material.
7. Do the procedure again until no more material is there between the feed roller 3 and the feed trough.
8. Start the machine. See *Starting the Machine ▸ 333*

Result The blockage in the card chute is removed.

6.8.10.5 Turning the Feed Roller at the Licker-In Unit Backward

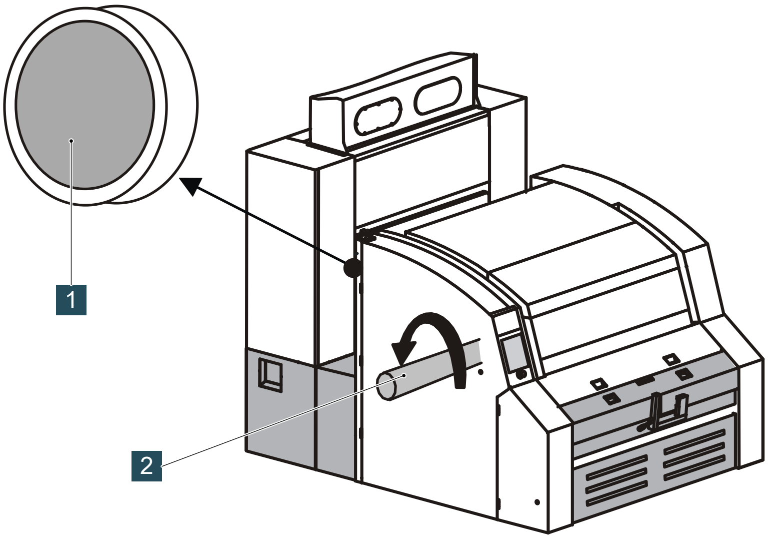


Figure 365: Feed roller button and feed roller

Prerequisites Make sure that the criteria are obeyed:

✓ The delivery unit is at a standstill.

1. Push the feed roller button 1.
   - ⇨ The feed roller 2 turns rearward.
   - ⇨ The fed-in batt is pushed back out.

Result The feed roller at the licker-in unit is reversed.

6.8.10.6 Removing the Material from the Suction Duct of the Flat Cleaning Unit

⚠ WARNING

Moving machine components!

Risk of hand injury

- ▶ Do NOT touch the machine components that move.
- ▶ Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- ▶ When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

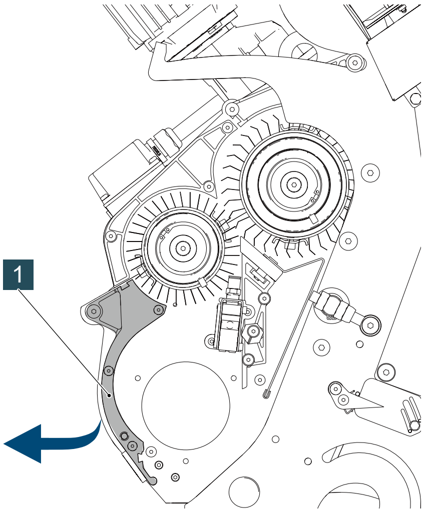


Figure 366: Cleaning the suction channel

1. Open the flap 1.
2. **WARNING! Moving machine components! Risk of hand injury because the machine components move.** Remove the unwanted material from the suction channel.

Result The material is removed from the flats cleaning unit.

6.8.10.7 Removing the Blockage in the Sliver Funnel

⚠ WARNING

Moving disk rollers

Hand injuries

- ▶ Stay away from the delivery unit when the front cover is opened.
- ▶ Stop the doffer.

NOTICE

Damaged surface on the sliver funnel

Material damage

▶ Do NOT use a steel spike or equivalent parts to pull the material.

1. Move the sliver funnel 2 downward by approximately 80 degrees.

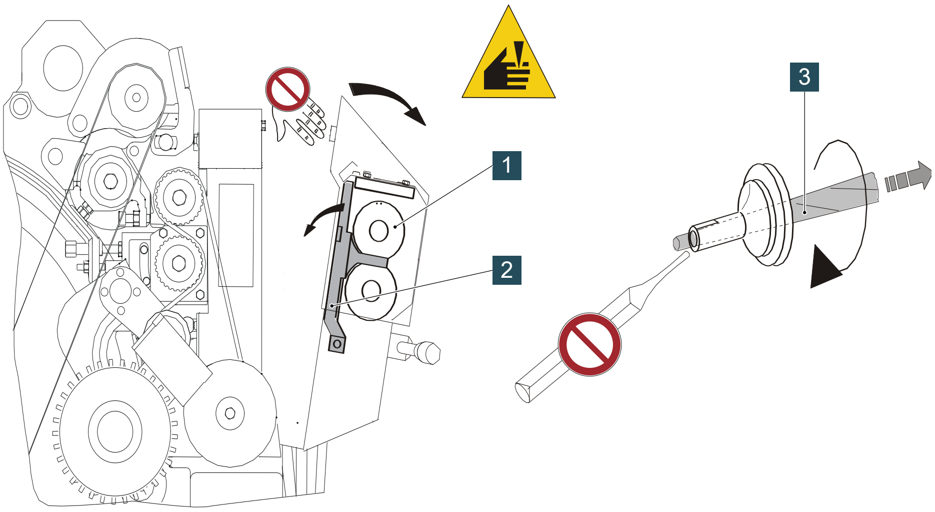


Figure 367: Removal of the blockage from the sliver funnel

2. **WARNING! Moving disk rollers. Hand injuries.** Remove the sliver funnel 2.
3. Turn the sliver 3.
4. Pull sliver 3 down.
5. Remove the sliver 3.

Result The blockage in the sliver funnel is removed.

6.8.10.8 Moving out the Calender Rollers

1. Pull the lever 1 outside.

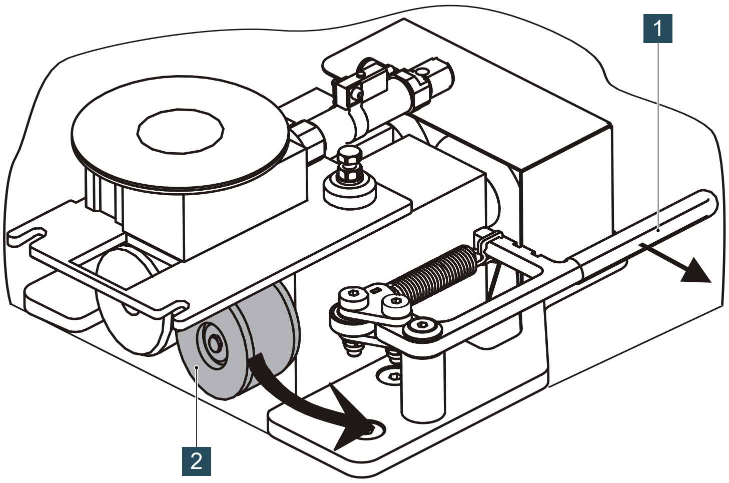


Figure 368: Calender rollers

2. Move the support with the calender roller 2.

Result The calendar rollers are moved out.

6.8.10.9 Removing the Metal from the Machine

Orientation The metal detector at the licker-in unit can monitor the metal parts that go into the machine. When the metal is monitored, the machine stops immediately. The operator must remove the metal from the machine.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The error message **Crd. FC, feed roll, metal detected U10** is shown on the display.
- ✓ The machine is stopped.

1. Push the feed roller button at card.
   - ⇨ The feed roller turns rearward.
   - ⇨ The batt is pushed back out of the machine.
2. Remove the batt.
3. Find and remove the metal parts.
4. Tap the acknowledge key to remove the error message on the operating unit.

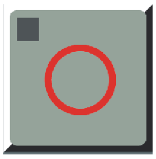
Result The metal is removed from the machine.

6.9 Stopping the Machine

This section contains the correct procedure to stop the machine.

6.9.1 Stopping the Doffer

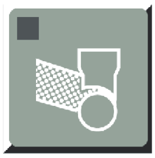
Switch-off limit, delivery speed	20 – 400 m/min
Default	400 m/min



1. Tap the doffer stop key 1 time.
   - ⇨ The feed roller stops.
   - ⇨ The doffer continues to operate in the speed that set in the data screen 41.32.
   - ⇨ When the sliver monitor senses that the sliver breaks, the doffer stops.
2. Tap the doffer stop key 2 times.
   - ⇨ The doffer stops immediately.
3. If the message **Chute filling underway** is shown, tap the doffer stop key 1 time.
   - ⇨ The filling of the lower part of the card chute is stopped.
   - ⇨ The opening roll in the card chute stops.

Result The doffer is stopped.

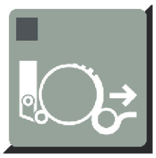
6.9.2 Stopping the Feed Roller



1. To stop the feed roller, tap the key for stopping the feed roller.
   - ⇨ No new material is supplied to the card.
   - ⇨ The machine is empty.

Result The feed roller is stopped.

6.9.3 Making the Card Chute and the Card Empty

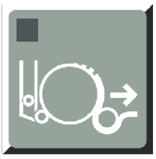


1. Tap the key for emptying the chute and card.
   - ⇨ The feed roller in the card chute stops.
   - ⇨ No more material is supplied to the feed chute.
   - ⇨ The card continues to supply until the sliver breaks.

Result The card chute and the card are emptied.

6.9.4 Making the Line Empty

Orientation This operating state is not suitable for normal machine operation. The monitoring units for filling the card chute, the batt thickness in the feed, and the sliver weight in the delivery are no longer active.



1. To empty the line, tap the key for emptying the line.
   - ⇨ If the UNImix is set to emptying mode, the card continues to supply until the sliver breaks.
   - ⇨ The AEROfeed line is empty.

Result The line is emptied.

6.9.5 Stopping the Machine

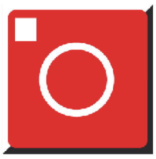
Brake Time for the Cylinder	
Cylinder drive with belt pulley	
500 rpm	≤ 180 s
900 rpm	≥ 210 s
Cylinder drive with frequency converter	
500 rpm	≤ 105 s
930 rpm	≥ 190 s

NOTICE

Machine damage!

The main switch is set to the position OFF during machine operation.

- ▶ Stop the machine with the stop key.
- ▶ Set the main switch to position OFF only after the machine is at a standstill.



1. Tap the stop key.
   - ⇨ The feed roller stops immediately.
   - ⇨ The doffer continues to operate until the sliver breaks.
   - ⇨ The sliver monitor shows that the sliver breakage and slowly set the doffer to the position OFF.
   - ⇨ The drives of the cylinder and the licker-in are stopped.
   - ⇨ The machine can be started again, if the stop procedure has not completed.
2. Wait until the machine is at a standstill.
3. Set the main switch to the position OFF.
4. Padlock the main switch.

Result The machine is stopped.

6.9.6 Setting the Main Switch to the Position OFF

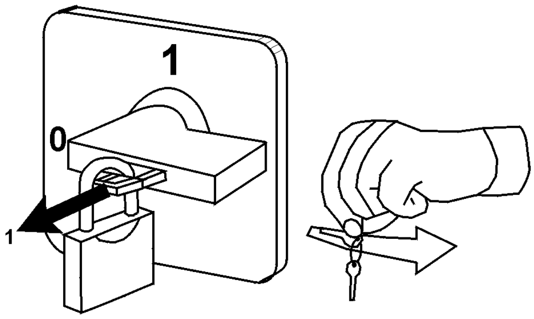


Figure 369: The padlocked main switch

1. Make sure that the machine is at a standstill.
2. Set the main switch to the position OFF (0).
3. Padlock the main switch.
4. Remove the key.
5. Keep the key safely.

Result The main switch is set to the position OFF.

6.9.7 Stopping the Compressed-Air Supply

1. To cut the compressed-air supply, move up the slider 1.
   ⇨ Compressed air supply is cut off.

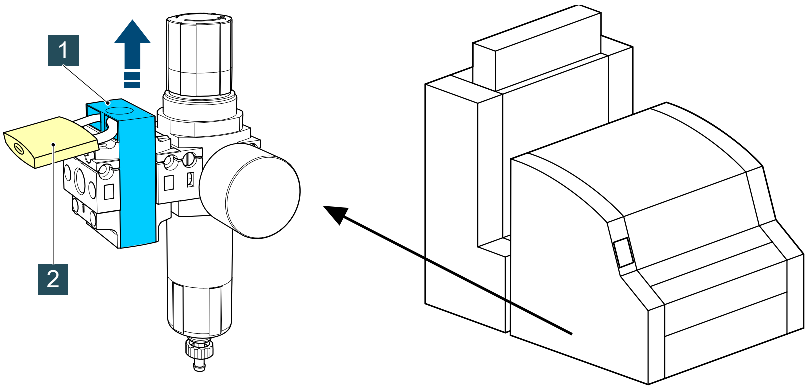


Figure 370: Compressed air valve with padlock

2. Attach the slider into the highest position with a padlock 2.
   ⇨ Compressed air supply is cut off and secured.

Result The compressed-air supply is stopped.

6.9.8 Stopping the UNIcontrol Feed System

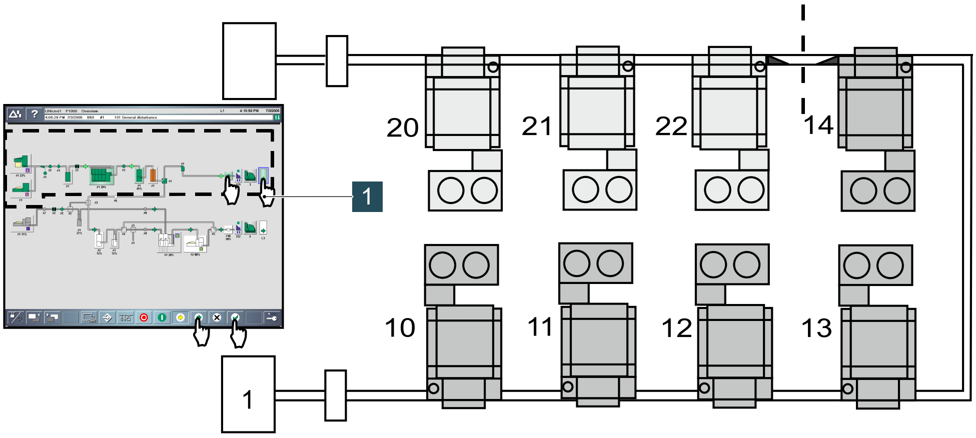


Figure 371: UNIcontrol system

Orientation This procedure is described in detail in the operating manual for the UNIcontrol unit.

1. First stop the doffers, one after the other, starting with the first card 10.
2. Stop the respective doffers of the line and follow the sequence 10, 11, 12, 13, 14.
   - ⇨ The doffers stop.
   - ⇨ Feed system continues to run.
3. Do not switch off the material flow until all the doffers are stopped.

Result The UNIcontrol feed system is stopped.

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7 Troubleshooting

This chapter contains the information about the fault list with the cause and remedies of software, production, and machine faults.

7.1 Faults Not Shown on the Display

The operator identifies the fault that is not shown on the display when the machine is in the operating state.

7.1.1 At the Feed Unit

Serial No.	Fault	Cause	Remedy
1	Card chutes consistently run empty.	Switch on or switch off time of the feed	If the feed machine switches off too late. – Increase the differential pressure in the feed channel so that the material will be fed in earlier. – Adjust the fill height in the feed chute (*refer to* ▸ *220*).
			If differential pressure in the feed channel has been increased, but there is no feed. – Clean the hose and the pressure port. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*). – Calibrate the pressure monitoring sensor (refer to).
		Insufficient capacity of the feed machine	If there is frequent production interruptions. – Correct the faults in the blowroom.
			If there are still reserves available. – Increase the capacity of the feed machine.
			If the capacity cannot be increased. – Set a limit for production of the cards. – Enter the production (*refer to* ▸ *209*).
2	Card chute, poor filling	Material guide – The deflector plate is not installed upstream of the first card chute.	Install the deflector plate on the first card chute (refer to).
		Feed channel	If material is collected in the feed channel. – Remove the cover and clean the channel.

Serial No.	Fault	Cause	Remedy
			– Clean the card chute channel (*refer to* ▸ *479*).
			If no material is collected in the feed channel. – Correct the poor transition in the feed channel.
			If the feed channel is blocked. – Clean the feed channel (*refer to* ▸ *473*).
			If the feed channel is not blocked. – Examine the production plan.
3	Drive of the opening roller in the card chute is overheated.	Motor torque is exceeded.	If the opening roller without belt does not turn freely. – Adjust the seal and bearing of the opening roller.
			If the opening roller turns freely but the toothed belt is not tensioned correctly. – Check and tighten the toothed belt (refer to).
			Final measure – Check the motor.

7.1.2 At the Delivery Unit

Serial No.	Fault	Cause	Remedy
1	No web on the delivery unit	No web or incomplete web on the delivery unit. – Determine the material flow. – Check cylinder, doffer and take-off roller, to determine whether fibers are accumulating in the clothing.	If material remains on the clothing. – Make analysis of the tongue.
			If material remains on the cylinder. – Make analysis of the cylinder clothing.
			If material remains on the doffer. – Make analysis of the doffer.
		Tongue – Material accumulates below the tongue. – The material accumulation touches the doffer and disturbs the web.	– Clean the space below the doffer. – Clean the tongue. – Adjust the distance from the tongue to the cylinder (*refer to* ▸ *257*). – At re-commissioning, examine the fiber transfer between cylinder and doffer.

Serial No.	Fault	Cause	Remedy
		– The material accumulation brakes the doffer.	
		Cylinder clothing – Unsuitable for the current application – No transfer to doffers	– Select the cylinder clothing type again. – Install the suitable cylinder clothing.
		Doffer – Fleece remains on doffer. – Rolls of fibers are formed.	If the distance between the take-off roller and the doffer is too large. – Adjust the take-off roller (refer to).
			If the distance of the take-off roller is not adapted to the height of the clothing. – Adapt the position of the lower delivery roller to the card flat clothing height (*refer to* ▸ *499*).
			If the web bridge is too close to the doffer. – Adjust the web bridge (refer to).
		The take-off roller pulls the web to the clearer roller. – The draft VA3 is too small.	– Increase the draft. – Set the draft for take-off roller and the delivery rollers (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
2	The sliver cannot be drew in (too light or too heavy).	Delay of the autoleveler is wrong.	Set the card delivery (*refer to* ▸ *211*).
3	Sliver breakage on the card occurs too frequently.	Display of thin points and slubs – Determine the settings in data screen 20.4.	If the sliver weight: ≥ 5 ktex. – Make analysis of the doffer clothing.
			If the sliver weight: < 5 ktex – In data screen 20.4, select a higher class >±20 %. Additional information: At low sliver weight, higher deflection will be displayed. These are caused naturally and are not faults.
		Doffer clothing – Examine the doffer clothing with the clothing magnifying glass.	If the doffer clothing is dirty. Clean the doffer (*refer to* ▸ *467*).
			If the doffer clothing is dull but can still be ground.

Serial No.	Fault	Cause	Remedy
			Grind the doffer clothing.
			If the doffer clothing is dull and worn. Replace the doffer clothing.
			If the doffer clothing is sharp. No measure is necessary.
4	Card sliver runs on the floor.	Tension of the card sliver is too small.	– Increase the tension. – Adjust the sliver tension (*refer to* ▸ *301*).
5	Card sliver does not run smoothly.	Web bridge	If the web bridge is dirty. – Clean the web bridge (*refer to* ▸ *480*).
			If the web bridge keeps getting dirty. – For material that tends to layer and if there is contamination, the web bridge must be cleaned on a regular basis. See the cleaning schedule for cleaning.
		Draft in the delivery unit – Draft is not correctly adapted to the delivery speed.	– Set the draft for the take-off roller and the delivery rollers (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Mechanical cause	Make sure that the coiler drive runs easily.
		Tension – card sliver – The tension is too small.	– Increase the tension. – Adjust the sliver tension (*refer to* ▸ *301*).
		Web – The web falls from the doffer. – The web is extracted.	– Examine the doffer status. – Do the visual inspection of the card flat clothing (*refer to* ▸ *490*). – Grind the doffer. Possible causes: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.

7.1.3 At the Can Changer

Serial No.	Fault	Cause	Remedy
1	Can jam at the can changer	Spinning can	If the dimension is not suitable. – Tap the stop key and wait until the machine is at a standstill.

Serial No.	Fault	Cause	Remedy
			– Set the main switch to the position OFF so that the pneumatic system is depressurized. – Remove the can. – Do not use the can any more.
			If the can is deformed. – Repair the can.
		Can is ejected quickly	– Throttle the speed of the can carriage (*refer to* ▸ *320*). Additional information: Movement that is too fast results in higher wear on the drive belt.

7.1.4 At the Sliver Coiling Device

Serial No.	Fault	Cause	Remedy
1	The coiler ratio is too close or too far.	The coiler speed is incorrect.	Adjust the coiler speed.
2	The distance between the card sliver and the can is too large or too small.	The sliver column distance is incorrect.	Change the distance between the card sliver and the can (*refer to* ▸ *317*).
3	The can falls after the can change.	The rollers at the cans do not turn freely.	– Clean the rollers. – If necessary, repair the rollers.
		The can is ejected too quickly.	Adjust the speed of the can carriage (*refer to* ▸ *320*). Additional information: Movement that is too fast results in higher wear on the drive belt.
4	The card sliver winds around the can.	The sliver cutting procedure is incorrect.	Adjust the time for the sliver cutting operation (*refer to* ▸ *303*).

7.1.5 Quality of the Sliver

Serial No.	Fault	Cause	Remedy
1	Excessive contamination in the card sliver	Cleaning effect of the blowroom	Do a check of the blow room machines for the waste extraction and the cleaning efficiency.

Serial No.	Fault	Cause	Remedy
		The extraction points are blocked.	– Remove the blockage. – Clean all suction points (*refer to* ▸ *462*).
		Clothing – Evaluate the wear on the licker-in and cylinder (*refer to* ▸ *486*). – Do the visual inspection and evaluation of the clothing (*refer to* ▸ *490*). – Evaluate the clothing of the card flats (*refer to* ▸ *500*).	If the clothing is dull. – Grind the clothing. – Remove the licker-in unit (*refer to* ▸ *557*). – Prepare the cylinder for the grinding (*refer to* ▸ *494*). – Prepare the card flats for the grinding (*refer to* ▸ *503*).
			If the clothing is worn or damaged. – Replace the clothing. – Replace the cylinder clothing (*refer to* ▸ *496*).
			If the clothing is unsuitable for the current application. – Use suitable clothing.
		Mote knife on the licker-in – The extraction opening is too small.	Adjust the extraction opening of the mote knife (*refer to* ▸ *238*).
		Carding zone – cylinder – The strips on the mote knife are too large.	Use smaller strips to increase the separation.
		The card flat speed is too low.	Enter the card flat speed (*refer to* ▸ *265*).
2	Too many neps in the card sliver	Insufficient reduction of the neps through the card – Determine the number of neps in the card feed. – Consult user statistics.	If there are more neps in the card sliver than there are in the feed. – Make analysis of the settings – card flats.
			If there are fewer neps in the card sliver than there are in the feed, and the user statistics is ≥ 75%. – Make analysis of the licker-in clothing.
			If there are fewer neps in the card sliver than there are in the feed, and the user statistics is ≥ 50%. – Make analysis of the cylinder clothing.

Serial No.	**Fault**	**Cause**	**Remedy**
			If there are fewer neps in the card sliver than there are in the feed, and the user statistics is ≥ 25%. – Make analysis of the card flats clothing (clothing is blunt).
			If there are fewer neps in the card sliver than there are in the feed, and the user statistics is ≤ 5%, and nep reduction of the card is good. – Make analysis of the upstream process (blowroom machines).
		Settings – card flats – The setting is not correct. – Measure the carding gap. – Drive the card flats for the adjustment (*refer to* ▸ *265*).	Adjust the card flats (*refer to* ▸ *270*).
		Card flat clothing – The card flat clothing is incorrect for the current application.	– Select the correct type of the card flat clothing. – Install the correct card flat clothing.
		Cylinder clothing – The cylinder clothing is incorrect for the current application. – No transfer of web to doffers.	– Select the correct type of the cylinder clothing. – Install the correct cylinder clothing.
		Licker-in clothing – The licker-in clothing is blunt. – Do visual inspection and evaluation of the clothing (*refer to* ▸ *490*).	– Remove the licker-in unit (*refer to* ▸ *557*). – Do the grinding of the licker-in clothing.
		Cylinder clothing – The cylinder clothing is blunt. – Do visual inspection and evaluation of the clothing (*refer to* ▸ *490*).	– Prepare the cylinder for the grinding (*refer to* ▸ *494*). – Grind the cylinder clothing.

Serial No.	Fault	Cause	Remedy
		Card flat clothing (clothing is blunt)	– Prepare the card flats for the grinding (*refer to* ▸ *503*). – Prepare the machine for grinding the card flats (*refer to* ▸ *502*). – Grind the card flat clothing.
		Upstream process (blowroom machines) – The rotational speeds of the fans and the clearer rollers are too high.	Decrease the speeds.
3	Fibers shortening through the card	Speed, rpm – Examine settings and speeds.	If the speed is too high. – Decrease the speed.
		Knife is damaged. – The edge on the knife has brows.	Replace the knife.
		Raw material Insufficient fiber strength	Examine the level of maturity and the fiber strength.
4	Thin points and slubs in the card sliver	Display of thin points and slubs – Determine the settings in data screen 20.4	If the sliver weight is ≥ 5 ktex. – Make analysis of the doffer clothing.
			If the sliver weight is < 5 ktex. – Select a higher class >±20 % in the data screen 20.4 **Quality, actual values, card, slubs** . Additional information: At low sliver weight, higher deflections will be displayed. These are caused naturally, and they are not faults.
		Doffer clothing – Examine the doffer clothing with the clothing magnifying glass.	If the clothing is contaminated. – Clean the doffer clothing (*refer to* ▸ *467*).
			If the doffer clothing is blunt, but the clothing can still be ground. – Preparing the doffer for grinding (*refer to* ▸ *497*). – Grind the doffer.
			If the doffer clothing is blunt and worn. – Replace the doffer clothing.

Serial No.	Fault	Cause	Remedy
			If the doffer clothing is sharp. – No steps are necessary.
		Wrong clothing on the take-off roller – Clothing without polish or Needle Finish were mounted.	Replace the take-off roller clothing with a clothing from Graf with polish or Needle Finish.
		No web or incomplete web on the delivery unit. – Determine the material flow. – Check cylinder, doffer and take-off roller, to determine whether fibers are accumulating in the clothing.	If material remains on the clothing. – Make analysis of the tongue.
			If material remains on the cylinder. – Make analysis of the cylinder clothing.
			If material remains on the doffer. – Make analysis of the doffer.
		Tongue – Material accumulates under the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space under the doffer. – Clean the tongue. – Adjust the distance from the tongue to the cylinder (*refer to ▸ 257*). – At re-commissioning, examine the fiber transfer between cylinder and doffer.
		Cylinder clothing – Unsuitable for the current application – No transfer to doffers	– Select the cylinder clothing type again. – Install the suitable cylinder clothing.
		Doffer – Fleece remains on doffer. – Rolls of fibers are formed.	If the distance between the take-off roller and the doffer is too large. – Adjust the take-off roller (refer to).
			If the distance of the take-off rollers is not adapted to the height of the clothing. – Adapt the position of the lower delivery roller to the doffer clothing height (*refer to ▸ 499*).
			If the web bridge is too close to the doffer. – Adjust the web bridge (refer to).

Serial No.	Fault	Cause	Remedy
		The delivery unit is contaminated.	Clean the delivery unit (*refer to* ▸ *457*).
		Delivery rollers – Examine the delivery rollers.	If the surface or the groove is damaged. – Replace the delivery rollers (*refer to* ▸ *597*).
		Cross apron	If the cross apron is worn. – Replace the cross apron (*refer to* ▸ *599*).
			If the cross apron is damaged. – Adjust the distance between the cross aprons (*refer to* ▸ *289*).
		The draft in the delivery unit is not optimally adapted to the delivery speed.	– Set the draft for the delivery rollers and the take-off roller (*refer to* ▸ *279*). – Do the configuration of the card delivery unit (*refer to* ▸ *211*).
5	High dimensional fluctuations (CVm%, U%) in the card sliver	The draft in the delivery unit is not optimally adapted to the delivery speed.	– Set the draft for the delivery rollers and the take-off roller (*refer to* ▸ *279*). – Do the configuration of the card delivery unit (*refer to* ▸ *211*).
		Spectrogram	If there is periodic fault (chimney). – Make analysis of the mechanical reason.
			If there is non-periodic fault (mountain). – Make analysis of the web bridge.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that does not move easily.
		Clothing – Evaluate the wear on licker-in and cylinder (*refer to* ▸ *486*). – Do a visual inspection and evaluation of the clothing (*refer to* ▸ *490*). – Evaluate the clothing of the card flats (*refer to* ▸ *500*).	If the clothing is blunt. – Remove the licker-in unit (*refer to* ▸ *557*). – Prepare the cylinder for the grinding (*refer to* ▸ *494*). – Prepare the card flats for the grinding (*refer to* ▸ *503*). – Grind the clothing.
			If the clothing is worn or damaged. – Replace the card flat clothing.

Serial No.	Fault	Cause	Remedy
			– Replace the cylinder clothing (*refer to* ▸ *496*).
			If the clothing is unsuitable for the current application. – Use the suitable clothing.
		Web bridge	If the web bridge is contaminated. – Clean the web bridge (*refer to* ▸ *480*).
			If the web bridge keeps getting contaminated. – Schedule the cleaning interval. Additional information: For material that tends to layer and if there is contamination, the web bridge must be cleaned on a regular basis.
		The distance between the delivery rollers is too large.	Adjust the distance of delivery rollers to less than or equal to 0.3 mm (*refer to* ▸ *284*).
		Electrostatic charge – The material flow for MMF is faulty.	– Polish the cross apron rollers. – Do a check of the air conditioner.

7.1.6 Production

Serial No.	Fault	Cause	Remedy
1	Insufficient production	Doffer clothing – Examine the doffer clothing with the clothing magnifying glass.	If the clothing is contaminated. – Clean the doffer (*refer to* ▸ *467*).
			If the doffer clothing is blunt, but the clothing can still be ground. – Preparing the doffer for grinding (*refer to* ▸ *497*). – Grind the doffer.
			If the doffer clothing is blunt and worn. – Replace the doffer clothing.
			If the doffer clothing is sharp. – No steps are necessary.

Serial No.	**Fault**	**Cause**	**Remedy**
2	Excessive waste, good fibers in the waste	The separation distances are too large.	– Determine the extraction point at which the good fibres are extracted. – Adjust and narrow this extraction point which is set too wide.
		Carding zone - cylinder – The strips on the mote knife are too small.	Use larger strips to reduce separation.
		The card flat speed is high.	Enter the card flat speed (*refer to* ▸ *265*).

7.1.7 At the Cylinder

Serial No.	**Fault**	**Cause**	**Remedy**
1	IGS grinding stone does not move.	Pneumatic system – No compressed air. – Compressed-air lines are defective.	Examine the compressed air supply.
		Undefined position – The guide carriage is not in park position on the right side of the machine.	– Move the guide carriage into the park position. – Install the electric magnet (*refer to* ▸ *515*).
		Mechanical features – IGS-Classic – do a function test (*refer to* ▸ *528*).	If a mechanical cause in the guide carriage prevents the movement. – Clean the guide. – Repair or replace the guide if necessary. – Remove the guide carriage (*refer to* ▸ *519*). – Install the guide carriage (*refer to* ▸ *519*).
		Diode is defective. – No voltage on the electric magnet	Replace the diodes in the socket outlet for the connection of the cylinder grinding device.
		Electric magnet – Check the voltage on the electric magnet.	If the voltage is present and the electric magnet is defective. – Replace the electric magnet (*refer to* ▸ *515*). – Adjust the height of grinding stone (*refer to* ▸ *526*).
			If the electric magnet is not defective.

Serial No.	Fault	Cause	Remedy
			– Inform the customer service of RIETER Machine Works Ltd.
		Excessive contamination	Examine the extraction system.
		Doors cannot be opened.	Adjust the door lock mechanism and the safety switch (*refer to ▸ 163*).

7.1.8 At the Operating Unit

Serial No.	Fault	Cause	Remedy
1	Master password unknown	Operator forgot password.	– Do a cold start (*refer to ▸ 166*). Additional information: After the cold start, all passwords are reset to the factory setting.
		Operator entered the password incorrectly.	– Enter the password (*refer to ▸ 70*). – Enter the correct password again, if the message **Password error** shows.

7.1.9 In the Control Cabinet

Serial No.	Fault	Cause	Remedy
1	Frequency converter, no response	Electric power supply	Assure the power supply. Important information: Refer to the electrical documentation.
		Frequency converter hardware – Ask help from electrician. – Do a test of the frequency converter (*refer to ▸ 172*).	If the frequency converter hardware is faulty and the test fails. – Replace the frequency converter (*refer to ▸ 610*).

7.2 Fault Messages with Fault Codes

Fault Code	Fault Text	Cause	Remedy
117	**Machine coasting, not ready**	Wiring	– Replace B1 and A20 Module. – Examine wiring. – Replace B3 too after the feedback of RIETER Machine Works Ltd.
200	**FatalError(), see logbook**	A warning message is shown on the data screen 31.30.	Solve the causes of the warning message.

Fault Code	Fault Text	Cause	Remedy
		Software error	– Stop the machine. – Make sure that the machine is at a standstill. – Set the main switch to the position OFF. – Set the main switch to the position ON. – If necessary, inform the customer service of RIETER Machine Works Ltd.
201	**Control module CX408 fault/ defect. A31** **CX408 ctrl. module, overcurr.13,14 A31** **CX408 ctrl. module, overcurr.15,16, A31** **CX408 ctrl. module, no supply inp., A31** **CX408 ctrl. module,no supply outp., A31**	The power supply is not connected. – No LED is illuminated.	Plug in the plug of the power supply.
		The CAN bus is not connected. – No data transmission. – LED flashes red (2 pulses).	– Connect the CAN bus. – Do the function check on CAN I/O module CX408 (*refer to* ▸ *169*).
		Knot switch is on the position 0. – The LED flashes red (1 pulse).	Set the node switch.
		Configuration	If the incorrect machine type is set in data screen 43.1. – Set the correct machine type (*refer to* ▸ *156*).
			If the incorrect coiler type is set in data screen 43.1. – Set the correct coiler type (*refer to* ▸ *156*).
202	**Control module CX408 fault/ defect** **CX408 ctrl. module, overcurr.13,14, A32** **CX408 ctrl. module, overcurr.15,16, A32**	In the run-up phase, – LED flashes green.	No steps are necessary.
		Knot switch is in the position 0. – The LED flashes red (1 pulse).	Set the node switch.
		The configuration of EEPROM is not correct. – The LED flashes red (1 pulse).	Speak to ELO service.
		The error occurs at the initialization of the CAN module.	– Speak to ELO service. – Replace the CX408 module.

Fault Code	Fault Text	Cause	Remedy
	CX408 ctrl. module, no supply inp., A32 **CX408 ctrl. module,no supply outp., A32**	– The LED flashes red (2 pulses).	
203	**Control module CX408 fault/ defect. A33** **CX408 ctrl. module, overcurr.13,14, A33** **CX408 ctrl. module, overcurr.15,16, A33** **CX408 ctrl. module, no supply inp., A33** **CX408 ctrl. module,no supply outp., A33**	Normal operation. – Data exchange is running. – LED illuminates green.	No steps are necessary.
		Defective outputs – The CAN bus controller is in grid operation. – LED illuminates orange.	No steps are necessary.
		Outputs are not supplied or the sensor supply is not monitored. – LED flashes orange.	Do a hardware reset (switch off/switch on).
		Warning: The node number is changed during the operation. – LED flashes red.	Reset the node number. Additional information: The new node number will be ignored and the function of the node remains intact.
		CAN-IO module has an error.	– Do the function check on CAN I/O module CX408 (*refer to* ▶ *169*). – If the function check doesn’t work, examine the feed and wiring. – Replace the module if necessary.
		CAN-IO module doesn’t have an error.	Do a hardware reset (switch off/switch on).
204	**Control module CX408 fault/ defect. A34** **CX408 ctrl. module, overcurr.13,14, A34**	The controller shows the tripping of the time monitor. The LED flashes green (2 pulses).	– Identify the cause for the tripping of the time monitor. – Do the applicable troubleshooting procedure.

Fault Code	Fault Text	Cause	Remedy
	CX408 ctrl. module, overcurr.15,16, A34 **CX408 ctrl. module, no supply inp., A34** **CX408 ctrl. module,no supply outp., A34**		
207	**Control module CX408 fault/ defect. A35** **CX408 ctrl. module, overcurr.13,14, A35** **CX408 ctrl. module, overcurr.15,16, A35** **CX408 ctrl. module, no supply inp., A35** **CX408 ctrl. module,no supply outp., A35**	The power supply is not connected. – No LED is illuminated.	Plug in the plug of the power supply.
		The CAN bus is not connected. – No data transmission. – The LED flashes red (2 pulses).	– Connect the CAN bus. – Do the function check on CAN I/O module CX408 (*refer to* ▸ *169*).
		Knot switch is on the position 0. – The LED flashes red (1 pulse).	Set the node switch.
		Configuration	If the incorrect machine type is set in data screen 43.1. – Set the correct machine type (*refer to* ▸ *156*).
			If the incorrect coiler type is set in data screen 43.1. – Set the correct coiler type (*refer to* ▸ *156*).
208	**Control, overheating A10**	The temperature in the area of the operating unit is too high.	If the ambient temperature is ≤ 50 ℃, only the operating unit is hot. – Cool the operating unit.
			If the ambient temperature is ≥ 50 ℃. – Lower the ambient temperature.
209	**Control module CAN fault/ defect. A11**	A11 CAN module	If A11 CAN module is missing. – Insert A11 CAN module in A10 panel and fasten it securely.

Fault Code	Fault Text	Cause	Remedy
			If incorrect parameters are set for A11 CAN module. – Set node switch X1 to 1, and X2 to 0. If incorrect CAN module is inserted. – Insert CAN module 3IF797.9-1. If CAN module has contact problems. – Insert CAN module correctly.
210	**Data loss maintenance data A10**	Software fault	– Confirm the fault messages. – Restart the machine.
211	**Data loss Shift data A10**	Software fault	– Confirm the fault messages. – Restart the machine.
212	**Data loss remanent data A10**	Software fault	– Confirm the fault messages. – Restart the machine.
213	**Data loss Logbooks A10**	Software fault	– Confirm the fault messages. – Restart the machine.
214	**Data loss statistiks data A10**	Software fault	– Confirm the fault messages. – Restart the machine.
215	**Data loss grafik data A10**	Software fault	– Confirm the fault messages. – Restart the machine.
216	**Error, card configuration (43.1)**	Incorrect type of card is selected.	Configure the card correctly (*refer to* ▸ *156*).
		Incorrect software version – Software is not adapted to this type of card.	Install proper version for type of card.
220	**Relay fault, card service sticking K23**	Relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the replay is OK, examine the control signal and wiring.
221	**Relay fault, card service switching K23**	Relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay.

Fault Code	Fault Text	Cause	Remedy
			– If the replay is OK, examine the control signal and wiring.
222	**Relay monitoring, card service K23**	Key switch – Grinding the card flats is needed. – In the data screen 81.3 **Flat grinding** is selected. – But the key switch is at the position I (production operation).	Set the key switch to the position II.
		Key switch – Production operation is needed. – But the key switch is at the position II (grind card flats).	Set the key switch to the position I.
225	**Disp. Chamb. top, clean.roll 2 open S57**	The suction duct cover of the flats cleaning unit is open.	If the cover is open, close the cover.
			If the cover is closed, – Examine the safety switch S57. – Make sure that the safety switch is activated when the cover is closed.
228	**Web breakage, card, B327**	The card sliver is broken. – The delivery unit is contaminated.	– Clean the delivery unit. – Draw in the web again.
229	**Web breakage, card, B328**	The card sliver is broken. – The delivery unit is contaminated.	– Clean the delivery unit. – Draw in the web again.
230	**Web breakage, card, B329**	The card sliver is broken. – The delivery unit is contaminated.	– Clean the delivery unit. – Draw in the web again.
237	**Card delivery rollers, lap, RH B333**	The material is wound on the delivery roller.	– Remove the wound material. – Examine the full delivery area for influences that interfere with the material flow. – See *Faults Not Shown on the Display* ▸ *363*

Fault Code	Fault Text	Cause	Remedy
		The proximity switches for the delivery rollers are set incorrectly.	Adjust the proximity switches for the delivery rollers (refer to).
		Proximity switch	If the proximity switch is defective. – Examine and repair the wiring. If the wiring is OK. – Replace the proximity switch.
		Module A 20 (D95K) is defective.	Replace the module D95K (*refer to* ▶ *168*).
238	**Fault relay, ext.EMERG.-OFF,switch. K66**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.
239	**Fault relay, ext.EMERG.-OFF,stick. K66**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
240	**Fault relay, card EMERG.-OFF, stick.K21**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
241	**Fault relay, card EMERG.-OFF,switch K21**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.
242	**Fault relay, card doors, sticking K22**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.

Fault Code	Fault Text	Cause	Remedy
243	**Fault relay, card doors, switching K22**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.
244	**Fault relay, coiler covers sticking K66**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
245	**Fault relay, coiler cover switching K66**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.
246	**Fault relay, watch-dog, sticking K20**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
247	**Fault relay, watch-dog, switching K20**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.
248	**Relay monitoring, ext.EMER.-OFF K66**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.
250	**EMERG.-OFF button, card S8**	Emergency stop button is pushed.	– Eliminate the cause of the emergency stop. – Turn the emergency stop button clockwise to release the emergency stop button.

Fault Code	Fault Text	Cause	Remedy
		Emergency stop button is released.	– Tell the plant electrician. – Examine the wiring. – Do the function test of the safety relay (*refer to* ▶ *172*).
252	**Door safeguard, driving side, card S18**	Doors are open.	Close the doors and the covers.
		Doors are closed, but the fault is still existing.	– Adjust the door lock mechanism and the safety switch (*refer to* ▶ *163*). – Do a function test of the safety relay (*refer to* ▶ *172*).
253	**Coiler, hood open S15**	The hood is not closed.	If the hood is open, close the hood. If the hood is closed already, but the fault message is still existing. – Examine and adjust the safety limit switches. – Do a function test of the safety relay (*refer to* ▶ *172*).
254	**Lockswitch, flat service, ON S6**	Key switch – Grinding the card flats is needed. – In the data screen 81.3 **Flat grinding** is selected. – But the key switch is at the position I (production operation).	Set the key switch to the position II.
		Key switch – Production operation is needed. – But the key switch is at the position II (grind card flats).	Set the key switch to the position I.
255	**Lockswitch, flat service, OFF S6**	Key switch – Grinding the card flats is needed. – In the data screen 81.3 **Flat grinding** is selected.	Set the key switch to the position II.

Fault Code	Fault Text	Cause	Remedy
		– But the key switch is at the position I (production operation).	
		Key switch – Production operation is tried. – But the key switch is at the position II (grind card flats).	Set the key switch to the position I.
257	**Relay monitoring, EMERG.-OFF, card K21**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
258	**Relay monitoring, card doors K22**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
259	**Relay monitor., coiler covers K66**	The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
260	**Blowroom not ready**	Minimum 1 blowroom machine is not in operation.	– Correct the faults on the appropriate machine and start the blowroom. – Make sure that the state of the last zone on plant control system must be green.
		Fire alarm system has tripped.	If the fire source has been removed, confirm the fire alarm and start the fire alarm system again.
			If a fire occurs. – Strike the fire alarm. – Extinguish the fire.

Fault Code	Fault Text	Cause	Remedy
		Material feed of the blowroom is not switched on.	– Set the material flow to ON for the material feed of the line. – Make sure that the material flow arrow on plant control system must be light green. – Check also the card allocation in the plant control system. – Make sure that the card is allocated to the appropriate line.
		Filter system does not operate.	Put the filter system in service again.
261	**Production, creep speed, stopped**	Doffer was intentionally changed to creep speed.	No steps are necessary. Additional information: – This display appears as a warning 30 seconds prior to expiration of the time set in data screen 40.35. – Production stops after the set time expires.
		Doffer was not changed to creep speed.	Start the production (doffer at high speed) (*refer to* ▸ *334*). Additional information: – Production remains at creep speed, if a sliver is not detected between the disk rollers.
		Doffer is at a standstill.	Start the production (doffer at slow speed) (*refer to* ▸ *334*).
262	**Ends down B7**	The card sliver is broken.	Start the production (doffer at slow speed) (*refer to* ▸ *334*).
		Light sensor does not detect the card sliver.	If the light sensor is incorrectly adjusted. – Adjust the light sensor (*refer to* ▸ *300*).
			If the light sensor is defective. – Replace the light sensor.
263	**Relay monitoring, watch-dog K20**	The relay does not switch.	– Examine the function of the relay by an approved electrician. – If the relay is defective, replace the relay. – If the relay is OK, examine the control signal and wiring.

Fault Code	Fault Text	Cause	Remedy
		The relay does not de-energize.	– Examine the function of the relay by an approved electrician. – If the contacts are fused, replace the relay. – If the relay is OK, examine the control signal and wiring.
264	**MPS on, test programs**	In addition to Q15, one more motor protection switch is on.	– Switch off all motor protection switches. – Only switch on Q15.
267	**Sliverguard, alarm USG**	Incorrect Sliverguard settings	Make adjustments and alignments according to the Sliverguard instructions.
		Tongue – Material accumulates under the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space under the doffer. – Clean and adjust the tongue. – Adjust the distance from the tongue to the cylinder (*refer to* ▸ *257*). – At re-commissioning, examine the fiber movement at cylinder and doffer.
		Draft in delivery unit is not optimally adapted to the delivery speed.	– Set the draft for the take-off roller and delivery rollers (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Poor batt feed	If the batt feed is not uniform. – Make analysis of the pressure monitor.
		Pressure monitor – An incorrect feedback is sent out.	– Remove, clean and reinstall the pressure line. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
		The infeed draft is too large.	If the lap feed is torn. – Reduce the infeed draft.
		Clothing – Evaluate the wear on the licker-in and cylinder (*refer to* ▸ *486*).	If the clothing is dull. – Remove the licker-in unit (*refer to* ▸ *557*). – Prepare the cylinder for grinding operation (*refer to* ▸ *494*).

Fault Code	Fault Text	Cause	Remedy
		– Do the visual inspection and evaluation of the clothing (*refer to* ▶ *490*). – Evaluate the clothing of the card flats (*refer to* ▶ *500*).	– Start the card flat for grinding operation (*refer to* ▶ *503*).
			If the clothing is worn or damaged. – Replace the cylinder clothing (*refer to* ▶ *496*).
			If the clothing is not applicable for the current application. – Use the applicable clothing.
		The delivery unit is dirty.	Clean the delivery unit (*refer to* ▶ *457*).
268	**External EMERGENCY STOP**	Emergency stop button is pushed.	– Eliminate the cause of the emergency stop. – Turn the emergency stop button clockwise to release the emergency stop button.
		Emergency stop button is released.	– Tell the plant electrician. – Examine the wiring. – Do the function test of the safety relay (*refer to* ▶ *172*).
270	**D95K communication shutdown CAN A20**	No response from the module D95K.	– Examine the LEDs A1, B1, C1, and C2 on the module D95K. – Examine the connection of the CAN bus.
		The LED A1 on the module D95K does not comes on.	Examine the voltage supply.
		The LED C2 on the module D95K comes on or flashes.	Examine the CAN connection with the operating unit.
271	**D95K fault, software version A20**	Incorrect software version.	– Replace the control module D95K (*refer to* ▶ *168*). – Tell the customer service of RIETER Machine Works Ltd.
272	**D95K data loss CAN**	CAN bus connection is not in order.	Examine the connection of the CAN bus.
		The LED C2 on the module D95K comes on or flashes.	Examine the CAN connection with the operating unit.
273	**D95K fault, PROM checksum A20**	Wrong checksum of the program – Program is destroyed.	– Replace the control module D95K (*refer to* ▶ *168*).

Fault Code	Fault Text	Cause	Remedy
			– Tell the customer service of RIETER Machine Works Ltd.
274	**D95K parameter fault, CAN A20**	Defective SRAM component.	– Replace the control module D95K (*refer to* ▸ *168*). – Tell the customer service of RIETER Machine Works Ltd.
294	**D95K fault, SRAM error A20**	Defective SRAM component.	– Replace the control module D95K (*refer to* ▸ *168*). – Tell the customer service of RIETER Machine Works Ltd.
305	**Card A% value overshoot B6**	Tongue – Material accumulates under the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space below the doffer. – Clean and adjust the tongue. – Adjust the distance from tongue to the cylinder (*refer to* ▸ *257*). – At re-commissioning, examine the fiber movement at cylinder and doffer.
		Web – The web falls off the doffer. – The web is removed.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing (*refer to* ▸ *490*). – Grind the doffer. Possible cause: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.
		Draft in delivery unit is not optimally adapted to the delivery speed.	– Set the draft for the take-off roller and delivery rollers (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Pressure monitor – An incorrect feedback is sent out.	– Remove and clean the pressure line. – Install again the pressure line. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
		The delivery unit is dirty.	Clean the delivery unit (*refer to* ▸ *457*).

Fault Code	Fault Text	Cause	Remedy
		The configuration of the A% value is incorrect.	– Examine the shut-off limit values in the data screen 22.1. – Adjust the shut-off limit A% (*refer to* ▸ *339*).
		Incorrect measurement – In data screen 82.2, read the value in the field **Delivery scanner card B6** . – The card sliver is OK, but the limit values are exceeded.	Calibrate the distance measuring device (*refer to* ▸ *297*).
306	**Card CV value overshoot B6**	Tongue – Material accumulates under the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space below the doffer. – Clean and adjust the tongue. – Adjust the distance from tongue to the cylinder (*refer to* ▸ *257*). – At re-commissioning, examine the fiber movement at cylinder and doffer.
		Web – The web falls off the doffer. – The web is removed.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing (*refer to* ▸ *490*). – Grind the doffer. Possible cause: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.
		Draft in delivery unit is not optimally adapted to the delivery unit.	– Set the draft for the take-off roller and delivery rollers (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Pressure monitor – An incorrect feedback is send out.	– Remove and clean the pressure line. – Install again the pressure line. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
		The delivery unit is dirty.	Clean the delivery unit (*refer to* ▸ *457*).

Fault Code	Fault Text	Cause	Remedy
		The configuration of the A% value is incorrect.	– Examine the shut-off limit values in the data screen 22.1. – Adjust the shut-off limit A% (*refer to* ▸ *339*).
		Incorrect measurement – In data screen 82.2, read the value in the field **Delivery scanner card B6**. – The card sliver is OK, but the limit values are exceeded.	Calibrate the distance measuring device (*refer to* ▸ *297*).
307	**Card spectrogram overshoot B6**	Clothing – Evaluate the wear on licker-in and cylinder. – Do the visual inspection and evaluation of the clothing (*refer to* ▸ *490*). – Evaluate the clothing of the card flats (*refer to* ▸ *500*).	If the clothing is dull. – Grind the clothing. – Remove the licker-in unit (*refer to* ▸ *557*). – Prepare the cylinder for grinding operation (*refer to* ▸ *494*). – Start the card flat for grinding operation (*refer to* ▸ *503*).
			If the clothing is worn or damaged. – Replace the clothing. – Replace the cylinder clothing (*refer to* ▸ *496*).
			If the clothing is not applicable for the current application. – Use the applicable clothing.
		Bearing damage or mechanical damage on parts.	If the parts rotating out of round – Replace the parts.
			If the toothed belts do not run quietly. – Correctly tension the toothed belts. – Replace the toothed belts if necessary.
		Damaged technology components or guide elements – Uniform material flow is disturbed.	Replace the parts.

Fault Code	Fault Text	Cause	Remedy
		Tension drafts are not optimally adjusted.	If material accumulates between two elements and when the accumulated mass is large enough to form a slub. – Increase tension incrementally until material no longer accumulates.
			If the material is tensioned tightly and is irregularly drafted. – Decrease tension until the material accumulates, then increase the tension a little bit. Objective: Lowest possible tension, without material accumulation.
		Incorrect correction factor	Examine the correction factor in the data screen 22.3.
312	**Card, slubs exceeded B6**	Tongue – Material accumulates under the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space below the doffer. – Clean and adjust the tongue. – Adjust the distance from tongue to the cylinder (*refer to* ▸ *257*). – At re-commissioning, examine the fiber movement at cylinder and doffer.
		Web – The web falls off the doffer. – The web is extracted.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing (*refer to* ▸ *490*). – Grind the doffer. Possible cause: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are full.
		Draft in delivery unit is not optimally adapted to the delivery speed.	– Set the draft for the take-off roller and delivery rollers (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Pressure monitor – An incorrect feedback is sent out.	– Remove and clean the pressure line. – Install again the pressure line. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Configuration	– Examine the configuration.

Fault Code	Fault Text	Cause	Remedy
			– Set the batt weight (*refer to* ▶ *225*).
		The delivery unit is dirty.	Clean the delivery unit (*refer to* ▶ *457*).
		The configuration of the A% value is incorrect.	– Examine the shut-off limit values in the data screen 22.1. – Adjust the shut-off limit A% (*refer to* ▶ *339*).
		Incorrect measurement – In data screen 82.2, read the value in the field **Delivery scanner card B6**. – The card sliver is OK, but the limit values are exceeded.	Calibrate the distance measuring device (*refer to* ▶ *297*).
321	**Slide carrier to end position B9**	Carriage is not in the end position when the main switch is set to the position ON.	Push the carriage into the end position manually.
		The function of the magnet switch is not correct.	– Examine the magnetic switch. – Adjust the magnetic switch for the can trolley drive (*refer to* ▶ *325*).
323	**Carrier malfunction B9 B10**	Drive belt is damaged. – Carriage can be pushed back and forth without resistance.	Replace the drive belt for the can trolley (*refer to* ▶ *603*).
		Carriage does not move freely.	Examine and adjust the carriage guide.
		Rear magnetic switch is incorrectly adjusted	Set the magnetic switch B9 (*refer to* ▶ *325*).
		Front magnetic switch is incorrectly adjusted.	Set the magnetic switch B10 (*refer to* ▶ *325*).
		The function of the magnet switch is not correct.	– Examine the magnetic switch. – Adjust the magnetic switch for the can trolley drive (*refer to* ▶ *325*).
		Throttles are not correctly adjusted. Therefore, the movement speed is not correct.	Throttle the speed of the can carriage (*refer to* ▶ *320*). Additional information: The user needs to be aware that the fast movement of can carriage leads to a higher wear on the drive belt.

Fault Code	Fault Text	Cause	Remedy
324	**Empty can missing S11**	No empty can is available.	Slide in an empty can.
326	**Coiler motor overheated M1**	Storage motor gets too warm.	Check the entire drive of the sliver deposit for ease of operation.
328	**Rod sw.or carrier drive belt defect S11**	No signal from the rod switch – The pull strap for the carriage drive is damaged.	Check the rod switch.
362	**Fault, sliver separation B13**	The locking rod is jammed.	Adjust the sliver cutting operation (*refer to* ▸ *305*)
		Wrong wiring	Examine and repair the wiring.
363	**Fault, sliver separation B13**	The locking rod is jammed.	Adjust the sliver cutting operation (*refer to* ▸ *305*).
		Wrong wiring	Examine and repair the wiring.
368	**Position levers coiler open B62 B63**	Position levers coiler are not closed.	– Check sensors of position levers B62 and B63. – Check pneumatic valve Y1. – Check pressure of the compressed air.
369	**Can changer pos.malfunction B65 B64 B61**	Can change procedure of coiler is not finished properly.	– Activate the can change manually so that the can changer can be positioned correctly (*refer to* ▸ *353*). – Check position sensors of changer B61, B64 and B65. – Check drive of changer: contactor K65, K66 and motor M65.
370	**Coiler position levers not open B62/63**	Position levers of coiler are not opened correctly.	– Check sensors of position levers B62 and B63. – Check pneumatic valve Y1. – Check pressure of the compressed air.
371	**Coiler pos. levers not closed B62/63**	Position levers of coiler are not closed correctly.	– Check sensors of position levers B62 and B63. – Check pneumatic valve Y1. – Check pressure of the compressed air.
372	**Sensor empty can or chang.drive def.B66**	The sensor which detects the empty can does not show can movement.	– Check sensor B66 which detects the empty can. – Check cable of sensor B66.

Fault Code	Fault Text	Cause	Remedy
		– Movement of empty can is not successful.	
373	**Prod.can missing, sensor empty can B66**	A can is not put on production can place.	– Activate can change manually with an empty can (*refer to ▸ 353*). – Check sensor B66 which detects the empty can. – Check the can changer of the coiler. – Check cable or sensor B66.
389	**Doffer blocked B4**	No web or incomplete web on the delivery unit – Determining the material flow – Check cylinder, doffer and take off roller, to determine whether fibers are accumulating.	If material remains on the clothing, – Make analysis of the tongue.
			If material remains on the cylinder, – Make analysis of the cylinder clothing.
			If material remains on the doffer. – Make analysis of the doffer.
		Tongue – The material is blocked below the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space below the doffer. – Clean the tongue. – Adjust the distance from the tongue to the cylinder (*refer to ▸ 257*). – At re-commissioning, examine the fiber movement of the cylinder to the doffer.
		Cylinder clothing – Cylinder clothing is not suitable. – No transfer to doffers.	– Select the cylinder clothing type again. – Put the suitable clothing to cylinder.
		Doffer – Fleece remains on doffer. – Rolls of fibres are formed.	If the distance between the take-off roller and the doffer is too large. – Adjust the take-off roller (refer to).
			If the delivery rollers are not adapted to the doffer clothing. – Adapt the position of the lower delivery roller to the clothing height (*refer to ▸ 499*).
			If the web bridge is too close to the doffer.

Fault Code	Fault Text	Cause	Remedy
			– Adjust the web bridge (refer to).
		Take off roller pulls web up to the clearer roller – Draft VA3 is too small.	– Increase the draft. – Set the draft for the delivery rollers and the take-off roller (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Delivery unit does not run freely.	– Examine the delivery unit for easy movement and material deposited in the delivery area.
		Belt drives – Drive belt slips frequently.	– Examine the belt for contamination. – Examine the belt tension. – Examine the tension of the toothed belts.
		Doffer speed detection does not function correctly. – Adjust the proximity switch for the doffer (*refer to* ▸ *185*).	If the setting is correct. – Replace the proximity switch.
			If the proximity switch is correct. – Check the wiring.
			If the wiring is correct. – Check the D95K module.
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▸ *168*).
		Causes are eliminated. – Recommissioning	– Clean the web bridge (*refer to* ▸ *480*). – In the data screen 41.30, in the field **Compensation fibre tuft**, set the compensation. – Adjust the sliver weight at low speed (*refer to* ▸ *278*).
390	**MPS doffer/ delivery Q12**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that does not move easily.

Fault Code	Fault Text	Cause	Remedy
391	**MPS doffer/ delivery on Q12**	Motor protection switches are still switched on.	Switch off the motor protection switch. Additional information: The test of the digital outputs can only be executed when the motor protection switch is switched off.
392	**MPS card feed roll/clean.brush Q10 Q14**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that does not move easily.
393	**MPS card f.roll/ clean.br. on Q10 Q14**	Motor protection switches are still switched on.	– Switch off the motor protection switch. Additional information: The test of the digital outputs can only be executed when the motor protection switch is switched off.
396	**Delivery motor, max. speed reached M12**	Drive belt	If the drive belt is insufficiently tensioned, – Tension the drive belt. – Examine and tension toothed belts.
			If the drive belt is worn. – Replace the drive belt.
		The delivery speed detection module does not work properly.	If the setting is incorrect. – Adjust the proximity switch for delivery speed (*refer to* ▸ *185*).
		Proximity switch	If the function is impaired. – Examine the wiring.
			If the wiring of the proximity switch is OK. – Replace the proximity switch.
397	**Delivery motor, min. speed reached M12**	Drive belt	If the drive belt is insufficiently tensioned, – Tension the drive belt. – Examine and tension toothed belts.
			If the drive belt is worn. – Replace the drive belt.

Fault Code	Fault Text	Cause	Remedy
		The delivery speed detection module does not work properly	If the setting is incorrect. – Adjust the proximity switch for delivery speed (*refer to* ▸ *185*).
		Proximity switch	If the function is impaired. – Examine the wiring.
			If the wiring of the proximity switch is OK. – Replace the proximity switch.
398	**Card feed roll, max. speed reached M10**	Batt is too light.	If the chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*).
			If the chute runs empty. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
			If the target pressure is too low, due to high material separation and low material density. – Examine the batt weight (*refer to* ▸ *226*).
		Poor bat feed – Batt feed is not uniform.	Make the analysis of the pressure monitor.
		Pressure monitor – An incorrect feedback is sent out.	– Remove, clean and reinstall pressure line. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
		Measuring device in the feed – In data screen 82.2, read the value in the field **Feed scanner card B5**.	If the value is not in the target range. (Range of signal feed without material is 730 -770. The standard setting is 750.) – Adjust the sensor in the feed unit (refer to).
			If the measuring device is defective. – Replace the measuring device of the feed plate.
399	**Delivery speed too high B3**	Drive belt	If the drive belt is insufficiently tensioned. – Tension the drive belt.

Fault Code	Fault Text	Cause	Remedy
			– Examine and tension the toothed belts.
			If the drive belt is worn. – Replace the drive belt.
		The delivery speed detection module does not work properly	If the setting is incorrect. – Adjust the proximity switch for delivery speed (*refer to* ▶ *185*).
		Proximity switch	If the function is impaired. – Examine the wiring.
			If the wiring of the proximity switch is OK. – Replace the proximity switch.
400	**Delivery speed too low B3**	Drive belt	If the drive belt is insufficiently tensioned. – Tension the drive belt. – Examine and tension the toothed belts.
			If the drive belt is worn. – Replace the drive belt.
		The delivery speed detection module does not work properly	If the setting is incorrect. – Adjust the proximity switch for delivery speed (*refer to* ▶ *185*).
		Proximity switch	If the function is impaired. – Examine the wiring.
			If the wiring of the proximity switch is OK. – Replace the proximity switch.
401	**Doffer rotating speed too low B4**	No web or incomplete web on the delivery unit – Determine the material flow. – Check cylinder, doffer and take-off roller, to determine whether fibers are accumulating in the clothing.	If the material remains on the clothing. – Make analysis of the tongue.
			If the material remains on the cylinder. – Make analysis of the cylinder clothing.
			If the material remains on the doffer. – Make analysis of the doffer.
		Tongue – Material accumulates under the tongue.	– Clean the space below the doffer. – Clean and adjust the tongue. – Adjust the distance from the tongue to the cylinder (*refer to* ▶ *257*).

Fault Code	Fault Text	Cause	Remedy
		– The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– At re-commissioning, check the fiber transfer from cylinder to doffer.
		Cylinder clothing – Cylinder clothing is not suitable for the current application. – No transfer to doffer	– Select the cylinder clothing type again. – Install the suitable cylinder clothing.
		Doffer – Fleece remains on doffer. – Rolls of fibers are formed.	If the distance between the take-off roller and the doffer is too large. – Adjust the take-off roller (refer to).
			If the distance of the take-off roller is not adapted to the height of clothing. – Adapt the position of the bottom delivery roller to the clothing height (*refer to* ▸ *499*).
			If the web bridge is too close to the doffer. – Adjust the web bridge (refer to).
		Take-off roller pulls web up to the clearer roller. – Draft VA3 is too small.	– Increase draft. – Set the draft for the delivery rollers and the take-off roller (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		Delivery unit does not operate freely.	Examine the delivery unit for easy movement and material deposited in the delivery area.
		Belt drives – Drive belt slips frequently.	– Examine the belt for contamination. – Examine the belt tension. – Examine the tension of the toothed belts (refer to).
		Doffer speed detection does not function correctly. – Adjust the proximity switch for the doffer speed (*refer to* ▸ *185*).	If the setting is correct. – Replace the proximity switch.
			If the proximity switch is correct. – Examine the wiring.
			If the wiring the correct.

Fault Code	Fault Text	Cause	Remedy
			– Make the analysis of the module A 20 (D95K).
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▸ *168*).
		Causes are eliminated. – Recommissioning	– Clean the web bridge (*refer to* ▸ *480*). – In the data screen 41.30, in the field **Compensation fibre tuft**, set the compensation. – Adjust the sliver weight at low speed. (Option: coiler) (*refer to* ▸ *278*). – Adjust the web weight at low speed. (Option: web production) (refer to).
402	**Feed roll, foreign body B5**	Measuring device in the feed – Foreign objects are between the feed trough and feed roller.	– Reverse the feed roller at licker-in unit. – Remove the unwanted objects. – Examine the feed trough (*refer to* ▸ *482*).
		Measuring device in the feed – In data screen 82.2, read the value in the field **Feed scanner card B5**.	If the value is not in the target range. (Range of signal feed without material is 730 -770. The standard setting is 750.) – Adjust the sensor in the feed unit (refer to).
			If the measuring device is defective. Replace the measuring device of the feed plate.
		The delay of the autoleveler is wrong.	Set the delay of the autoleveler (*refer to* ▸ *211*).
403	**Scanner batt cable breakage B5**	No signal from the measuring device of the feed trough	If the cable break on the measuring device. – Repair the wiring. – Examine the measuring device for function.
			If the function is correct. – Make the analysis of the measuring device in the feed.
		Measuring device in the feed – The measuring device is set incorrectly.	Adjust the sensor in the feed unit (refer to).

Fault Code	Fault Text	Cause	Remedy
		Sliver/web weight at creep speed is set incorrectly.	– Adjust the sliver weight at low speed. (Option: coiler) (*refer to* ▸ *278*). – Adjust the web weight at low speed. (Option: web production) (refer to).
404	**Scanner sliver, cable breakage B6**	No signal from the measuring device in the delivery unit	If the current loop of the measuring device in the delivery unit is interrupted. – Repair the wiring. – Examine the measuring device for function.
			If the measuring device is set incorrectly. – Examine the measuring device of the autoleveler in the delivery unit.
			If the measuring device is set correctly. – Make the analysis of the module A 20 (D95K).
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▸ *168*).
405	**Batt feeder lap too light B5**	Batt is too light.	If the chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*).
			If the chute runs empty. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
			If the target pressure is too low, due to high material separation and low material density. – Examine the batt weight (*refer to* ▸ *226*).
		Compression fan – Fan, channel, or mesh wall is clogged.	Examine and clean the fan, channel, or mesh wall.
		Measuring device in the feed is set incorrectly.	Adjust the sensor in the feed unit (refer to).
		Feed trough in chute	If the load of the feed trough is not correct. – Adjust the feed trough load (*refer to* ▸ *229*).
			If the feed trough in chute is jammed.

Fault Code	Fault Text	Cause	Remedy
			– Adjust the feed trough for a minimum distance (*refer to* ▸ *229*).
406	**Batt feeder lap too heavy B5**	Batt is too heavy.	If the chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*).
			If the chute is overfilled. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Measuring device in the feed is set incorrectly.	Adjust the sensor in the feed unit (refer to).
		Feed trough in chute	If the load of the feed trough is not correct. – Adjust the feed trough load (*refer to* ▸ *229*).
			If the feed trough in chute is jammed. – Adjust the feed trough for a minimum distance (*refer to* ▸ *229*).
407	**Sliver weight too light B6**	Draft – For disk rollers with a width of 9 mm, the sliver weight is lighter than 3.4 ktex. – For disk rollers with a width of 15 mm, the sliver weight is lighter than 6.0 ktex.	Examine and correct the sliver weight. *(refer to)* ▸ *344*
		Draft – Correction factor capacity is reached. – Correction factor: 0.5 – 1.5	– Examine the target sliver weight. – Adjust the sliver weight (*refer to* ▸ *208*).
		Sliver weight in low speed is set incorrectly.	Adjust the sliver weight at low speed (*refer to* ▸ *278*).
		Web – The web falls off the doffer. – The web is removed.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing. (*refer to* ▸ *490*) – Grind the doffer.

Fault Code	Fault Text	Cause	Remedy
			Possible cause: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.
		Suction unit: – Unsatisfactory air ratios in the delivery unit	Better adjust the air ratios in the discharge unit so that the web is not suctioned.
408	**Sliver weight too heavy B6**	Draft – Sliver weight is heavier than 15 ktex.	Examine and correct the sliver weight (*refer to* ▸ *344*).
		Draft – The correction factor capacity is reached. – Correction factor: 0.5 – 1.5	– Examine the target sliver weight. – Adjust the sliver weight (*refer to* ▸ *208*).
		Sliver weight in creep speed is incorrectly set.	Adjust the sliver weight at low speed (*refer to* ▸ *278*).
		Measuring device in the delivery unit	If the measured value remains too long in the low limit area. – Calibrate the distance measuring device (*refer to* ▸ *297*).
409	**Scanner sliver, min. level cntrl. B6**	Draft – Card sliver is too light. – Card sliver is too heavy	Set the delay of the autoleveler (*refer to* ▸ *211*).
		The sliver weight in low speed is set incorrectly.	Adjust the sliver weight at low speed (*refer to* ▸ *278*).
		Measuring device in the delivery unit	If the measured value remains too long in the low limit area. – Calibrate the distance measuring device (*refer to* ▸ *297*).
410	**Scanner sliver, max. level cntrl. B6**	Draft – Card sliver is too light. – Card sliver is too heavy	Set the delay of the autoleveler (*refer to* ▸ *211*).
		The sliver weight in low speed is set incorrectly.	Adjust the sliver weight at low speed (*refer to* ▸ *278*).
		Measuring device in the delivery unit	If the measured value remains too long in the low limit area.

Fault Code	Fault Text	Cause	Remedy
			– Calibrate the distance measuring device (*refer to* ▶ *297*).
411	**Controll. sliv. wght. under-compens.**	Suction unit – Poor air ratios in the delivery unit.	Better adjust the air ratios in the discharge unit so that the web is not suctioned.
		Web – The web falls off the doffer. – The web is extracted.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing (*refer to* ▶ *490*). – Grind the doffer. Possible cause: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.
		The measuring device in the feed unit is set incorrectly.	Adjust the sensor in the feed unit (refer to).
		The delay of the autoleveler	Set the delay of the autoleveler (*refer to* ▶ *211*).
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▶ *168*).
412	**Controll. sliv. wght. over-compens.**	Suction unit – Poor air ratios in the delivery unit.	Better adjust the air ratios in the discharge unit so that the web is not suctioned.
		Web – The web falls off the doffer. – The web is extracted.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing (*refer to* ▶ *490*). – Grind the doffer. Possible cause: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.
		The measuring device in the feed unit is set incorrectly.	Adjust the sensor in the feed unit (refer to).
		The delay of the autoleveler	Set the delay of the autoleveler (*refer to* ▶ *211*).
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▶ *168*).
413	**MPS coiler Q60**	Motor protection switch	If the motor protection switch of coiler motor has been triggered.

Fault Code	Fault Text	Cause	Remedy
			– Check coiler drive for ease of movement. – Check settings of motor protection switch.
			If the motor protection switch is triggered repeatedly. – Check the coiler motor. – Replace the coiler motor if necessary.
414	**MPS coiler on Q60**	There is another motor protection switch that is on, other than Q15.	Switch off all motor protection switches. Switch on only Q15.
415	**Coiler motor max. r.p.m. reached M1**	Maximum speed of coiler motor has been reached.	– Slightly decrease the selected delivery speed. – Check belt of M12 motor for slippage. – Check selected machine configuration in data screen 43.1.
416	**Coiler motor min. r.p.m. reached M1**	Speed of coiler motor has decrease below minimum acceptable speed.	– Check belt pulley of M12 motor. – Check selected machine configuration in data screen 43.1.
417	**Error, card configuration (43.1)**	Configuration – In data screen 43.1, determine the configuration.	If incorrect type of machine is configured. – Configure the machine type (*refer to* ▸ *156*).
			If incorrect type of coiler is configured. – Configure the type of coiler (*refer to* ▸ *156*).
		Drives – Wrong reduction ratio	Examine the pulleys M12/M11 (*refer to* ▸ *195*).
		Belt drives – The drive belt slips frequently.	– Examine the belt for contamination. – Examine the belt tension. – Examine the tension of toothed belt (refer to).
423	**Doffer motor has reached max. speed M11**	The draft in delivery unit is too high. – Target rotational speed of the doffer motor is too high.	– Decrease the draft in delivery unit. – Set the draft for the take-off roller and the delivery roller (*refer to* ▸ *279*).
		The delivery speed is too high.	– Decrease the delivery speed. – Enter the production (*refer to* ▸ *209*).

Fault Code	Fault Text	Cause	Remedy
424	**Doffer motor speed too slow M11**	The draft in delivery unit is too low. – Target rotational speed of the doffer motor is too low.	– Increase the draft in the delivery unit. – Set the draft for the take-off roller and the delivery roller (*refer to* ▸ *279*).
		Velocity in creep speed is too low.	Select the data screen 41.30, in the field **Speed creep speed** increase the speed. (Delivery speed, slow: 15 m/min)
426	**Material transport,cylinder/delivery**	Doffer clothing – Examine the doffer clothing with the clothing magnifying glass.	If the clothing is dirty. – Clean the doffer (*refer to* ▸ *467*).
			If the doffer clothing is dull and can still be ground. – Grind the doffer. – Prepare doffer for grinding (*refer to* ▸ *497*).
			If the doffer clothing is dull and the clothing is already worn. – Re-clothe doffers.
			If the doffer clothing is sharp. – No measures are necessary.
		No web or incomplete web on the delivery unit. – Determine the material flow. – Check cylinder, doffer and take-off roller, to determine whether fibers are accumulating in the clothing.	If material remains on the clothing. – Make analysis of the tongue.
			If the material remains on the cylinder. – Make analysis of the cylinder clothing.
			If material remains on the doffer. – Make analysis of the doffer.
		Tongue – Material accumulates under the tongue. – The material accumulation touches the doffer and disturbs the web. – The material accumulation brakes the doffer.	– Clean the space below the doffer. – Clean and adjust the tongue. – Adjust the distance from the tongue to the cylinder (*refer to* ▸ *257*). – At re-commissioning, check the fiber transfer from cylinder to doffer.
		Cylinder clothing	– Select the cylinder clothing type again. – Install the suitable cylinder clothing.

Fault Code	Fault Text	Cause	Remedy
		– The cylinder clothing is not suitable for the current application. – No transfer to doffers.	
		Doffer – Fleece remains on doffer. – Rolls of fibers are formed.	If the distance between the take-off roller and the doffer is too large. – Adjust the take-off roller (refer to).
			If the distance of the take-off roller is not adapted to the height of the clothing. – Adapt the position of the lower delivery roller to the clothing height (*refer to* ▸ *499*).
			If the web bridge is too close to the doffer. – Adjust the web bridge (*refer to* ▸ *285*).
		The take-off roller pulls web up to the clearer roller.	If draft VA3 is too small. – Increase the draft. – Set the draft for the take-off roller and the delivery roller (*refer to* ▸ *279*). – Set the card delivery (*refer to* ▸ *211*).
		The delivery unit does not operate freely.	Examine the delivery unit for ease of movement and jammed material in the delivery area.
		Belt drives – The drive belt is slippery.	– Examine the belt for contamination. – Examine the belt tension. – Examine and tension the toothed belt.
		The doffer speed detection does not function correctly.	Adjust the proximity switch of doffer (*refer to* ▸ *185*).
			If the setting of the doffer speed detection is correct. – Replace the proximity switch.
			If the proximity switch is correct. – Examine the wiring.
			If the wiring is correct. – Make analysis of module A 20 (D95K).

Fault Code	Fault Text	Cause	Remedy
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▶ *168*).
		Causes are eliminated. – Recommissioning	– Clean the web bridge (*refer to* ▶ *480*). – Set the compensation in the field **Compensation fibre tuft** in the data screen 41.30. – Adjust the sliver weight at low speed (*refer to* ▶ *278*).
427	**Cylinder: Layer of material too high**	Refer to the troubleshooting steps of the error code 426.	Refer to the troubleshooting steps of the error code 426.
428	**MPS coiler Q65 Q60**	Motor protection switch of coiler motor Q60 or changer motor Q40 has tripped. Motor M60 or M40 is running hard.	– Check motor of coiler for ease of movement. – Check motor of changer for ease of movement. – Check adjustment of motor protection switches M65 and Q65.
429	**MPS coiler on Q65 Q60**	There is another motor protection switch that is on, other than Q15.	Switch off all motor protection switches. Switch on only Q15.
438	**Chamber wall of chute not mounted B45**	Monitoring of the chute wall	If the chute wall is removed. – Install the chute wall. – Adjust the batt weight through the position of the card chute wall (*refer to* ▶ *224*).
			If the chute wall is installed. – Examine the proximity switch. – Adjust the proximity switch of the card chute wall (refer to). – Examine the plug connection and wiring.
439	**Chute,pressure meas., broken cable, B23**	Pressure sensor B23 in the chute	If no signal comes from the pressure sensor B23. – Examine the wiring. – Examine the connector in the pressure sensor.

Fault Code	Fault Text	Cause	Remedy
			– Adjust the pressure monitoring sensor (*refer to* ▸ *179*). If the wiring of the pressure sensor is OK. – Examine the pressure sensor for function. If the function of the pressure sensor is OK. – Calibrate the pressure monitoring sensor (refer to). – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▸ *168*).
440	**MPS chute drives Q42,Q43**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason. If the motor protection switch trips recurrently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
441	**MPS chute drives on Q42 Q43**	Motor protection switches are still switched on.	– Switch off the motor protection switch. Additional information: The test of the digital outputs can only be executed when the motor protection switch is switched off.
442	**Chute is empty B23**	The batt is too light.	If the chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*). If the chute runs empty. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*). If the target pressure is too low due to high material separation and low material density. – Examine the batt weight (*refer to* ▸ *226*).

Fault Code	Fault Text	Cause	Remedy
		Switch on/switch off time of the feed	If the feed machine switches off too late. – Increase the differential pressure in the feed channel. Additional information: Material will be fed in earlier. – Adjust the fill height in the feed chute (*refer to* ▸ *220*).
			If the differential pressure in the feed channel has been increased, but there is no feed. – Clean the hose and pressure port. – Examine the jumper for pressure sensor. – Calibrate the pressure monitoring sensor (refer to).
		Insufficient capacity of the feed machine	If the production is interrupted frequently. – Correct the faults in the blowroom.
			If there are still reserves available. – Increase the capacity of the feed machine.
			If the capacity can’t be increased. – Restrict the production of the cards. – Enter the production (*refer to* ▸ *209*).
443	**Aerofeed no material**	Refer to the troubleshooting steps of the error code 442.	Refer to the troubleshooting steps of the error code 442.
444	**Chute opening roller speed too low B44**	Material – A lap has formed.	Remove the material.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
		The rotational speed of the opening roller in the chute is set too low.	– Increase the speed through the pulley. *(refer to)* ▸ *190* – Adjust the speed of the opening roller (*refer to* ▸ *227*).
		Speed monitor	If the adjustment is not correct.

Fault Code	Fault Text	Cause	Remedy
		– Examine the adjustment of the proximity switch (*refer to* ▸ *178*).	– Set the proximity switch of the opening roller (*refer to* ▸ *178*).
			If the value is in the target range. – Make analysis of the proximity switch.
		Proximity switch	If the function is impaired. – Examine and repair the wiring.
			If the wiring of the proximity switch is OK. – Replace the proximity switch.
445	**Chute opening roller blocked B44**	Refer to the troubleshooting steps of the error code 444.	Refer to the troubleshooting steps of the error code 444.
446	**Chute opening roller start-up speed B44**	Refer to the troubleshooting steps of the error code 444.	Refer to the troubleshooting steps of the error code 444.
447	**Chute opening roller overheated M42**	Drive belts	If the drive belt is insufficiently tensioned. – Apply the tension to the drive belt. – Examine the tension of the toothed belt (refer to).
			If the drive belt is worn. – Replace the drive belt.
		Material – A lap has formed.	Remove the material.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
451	**Chut open. roller r.p.m. too high B44**	Change pulleys – Wrong combination is used.	– Use the correct combination of the gearing *(refer to)* ▸ *190*. – Adjust the speed of the opening roller (*refer to* ▸ *227*).
		Proximity switch has wrong signal.	Adjust the proximity switch of the opening roller (*refer to* ▸ *178*).
452	**Chute door open**	Doors and covers	If doors are open. – Close the doors and the covers.
			If doors are closed.

Fault Code	Fault Text	Cause	Remedy
			– Adjust the door lock mechanism and the safety switch (*refer to* ▸ *163*). – Do a function test of the safety relay (*refer to* ▸ *172*).
453	**MPS chute feed roll Q41**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanical in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
454	**MPS chute feed roll on Q41**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanical in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
455	**MPS cylinder/ licker-in Q1 Q13**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanical in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.

Fault Code	Fault Text	Cause	Remedy
456	**MPS cylinder/ licker-in on Q1 Q13**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanical in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
457	**Cylinder speed above 999 /min B1**	Change pulleys – Wrong combination is used.	– Use the correct combination of the gearing *(refer to)* ▸ *190*. – Adjust the speed of the opening roller (*refer to* ▸ *227*).
		Frequency converter hardware – Tell electrician. – Do a function test of the frequency converter (*refer to* ▸ *172*).	If the frequency converter hardware is incorrect and the test fails. – Replace the frequency converter (*refer to* ▸ *610*).
458	**Cylinder proximity switch defective B1**	Proximity switch	If the proximity switch is set incorrectly. – Adjust the proximity switch for the cylinder (*refer to* ▸ *181*).
			If the function is impaired. – Examine the wiring.
			If the wiring is OK. – Replace proximity switch.
459	**Cylinder speed too high B1**	Change pulleys – Wrong combination is used.	– Use the correct combination (*refer to* ▸ *191*). – Adjust the cylinder speed (*refer to* ▸ *210*).
		Frequency converter hardware – Tell electrician. – Do a function test of the frequency converter (*refer to* ▸ *172*).	If the frequency converter hardware is incorrect and the test fails. – Replace the frequency converter (*refer to* ▸ *610*).

Fault Code	Fault Text	Cause	Remedy
460	**Cylinder speed too low B1**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that does not move easily.
		Cylinder – Determine whether the cylinder can be turned by hand.	If the cylinder is blocked. – Remove the carding elements in the cylinder area (*refer to ▸ 570*). – Examine the cylinder clothing for contamination and clean the cylinder clothing (*refer to ▸ 494*).
			If the cylinder turns freely. – Clean the pulley. – Adjust the cylinder belt tension (*refer to ▸ 259*).
		Setting procedure – Tolerance is set too low.	Configure the speed monitor for the cylinder (*refer to ▸ 212*).
461	**Cylinder below production speed B1**	Refer to the troubleshooting steps of the error code 460.	Refer to the troubleshooting steps of the error code 460.
462	**Cylinder does not start up B1**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that does not move easily.
		Cylinder – Determine whether the cylinder can be turned by hand.	If the cylinder is blocked. – Remove the carding elements in the cylinder area (*refer to ▸ 570*). – Examine the cylinder clothing for contamination and clean the cylinder clothing (*refer to ▸ 494*).
			If the cylinder turns freely. – Clean the pulley. – Adjust the cylinder belt tension (*refer to ▸ 259*).
		Proximity switch	If the proximity switch is not set correctly.

Fault Code	Fault Text	Cause	Remedy
			– Examine the adjustment of the proximity switch (*refer to* ▸ *181*). If the proximity switch function is impaired. – Examine the wiring. If the wiring is OK. – Replace the proximity switch.
463	**Cylinder coasting, prox. sw.fault B1**	Proximity switch	If the proximity switch is not set correctly. – Examine the adjustment of the proximity switch (*refer to* ▸ *181*). If the proximity switch function is impaired. – Examine the wiring. If the wiring is OK. – Replace the proximity switch.
		Mains failure	Set the main switch to the position ON, and wait 15 minutes.
464	**Cylinder fails to remain stationary B1**	The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▸ *168*).
465	**Draft licker-in/ cylinder too small**	Draft of the licker-in to cylinder is less than 1.15.	Adjust the cylinder speed (*refer to* ▸ *210*).
466	**Licker-in proximity switch defect. B9**	Proximity switch	If the proximity switch is not set correctly. – Adjust the proximity switch for the licker-in (*refer to* ▸ *180*). If the proximity switch function is impaired. – Examine the wiring. If the wiring is OK. – Replace the proximity switch.
467	**Licker-in rot. speed not reached B9**	Proximity switch	If the proximity switch is not set correctly. – Adjust the proximity switch for the licker-in (*refer to* ▸ *180*). If the proximity switch function is impaired. – Examine the wiring. If the wiring is OK. – Replace the proximity switch.

Fault Code	Fault Text	Cause	Remedy
468	**Licker-in blocked B9**	Proximity switch	If the proximity switch is not set correctly. – Adjust the proximity switch for the licker-in (*refer to* ▶ *180*).
			If the proximity switch function is impaired. – Examine the wiring.
			If the wiring is OK. – Replace the proximity switch.
469	**Licker-in rotating speed too low B9**	Proximity switch	If the proximity switch is not set correctly. – Adjust the proximity switch for the licker-in (*refer to* ▶ *180*).
			If the proximity switch function is impaired. – Examine the wiring.
			If the wiring is OK. – Replace the proximity switch.
470	**Congestion, flat cleaning B11**	Light barrier – Check the LED.	If the LED is continuously illuminated. – Adjust the suction channel monitor. – Increase the delay time in the data screen 41.32.
			If the LED is never illuminated. – Make the analysis of the flat disposal chamber.
			If the fault happens frequently even though the clogging is not really present. – Extend the delay time. – Set the delay time in the field **Len.of time until fault,B11** in the data screen 41.32 (*refer to* ▶ *148*).
		Flat disposal chamber – The flat disposal chamber is clogged.	Clean the suction channel (*refer to* ▶ *469*).
		Suction unit – Clogging in the suction unit – Insufficient airflow rate at the suction point, although the suction unit has enough suction.	Remove the clogging in the suction channel.

Fault Code	Fault Text	Cause	Remedy
471	**Flat alignment faulty B8**	Toothed belt – flat drive – Check whether the card flats run offset left and right.	If the card flats run offset. – Loosen the belt and lock the toothed belt to align left and right. – Apply tension to the card flat belt (*refer to* ▸ *580*).
			If the card flats run mechanically correctly. – Adjust the proximity switches for the card flats (*refer to* ▸ *182*).
472	**Flat standstill B2**	Mechanical features – Determine the cause for the standstill. – If no apparent cause can be identified, carefully drive the card flats for a short distance in reverse (*refer to* ▸ *272*).	If there is contamination in the area of the card flats. – Examine the deflection pulleys of the deflection unit of the card flat (*refer to* ▸ *577*). – Clean the card flat heads (*refer to* ▸ *476*).
			If the card flats are loose or jammed. – Tighten the card flats correctly. – Install the card flats (refer to).
		Drive unit – Slip clutch slips through, although the mechanism of the card flat is not blocked.	– Increase the torque incrementally and test drive. – Adjust the friction clutch on the card flat drive (refer to). – Activate the card flat drive (*refer to* ▸ *182*).
		Lubrication – Check lubrication of the running surface.	If the lubricant is used up. – Replace the lubricating blocks of the card flats (*refer to* ▸ *484*).
		Proximity switch	If the proximity switch is not set correctly. – Adjust the proximity switches for the card flats (*refer to* ▸ *182*).
			If the proximity switch function is impaired. – Examine the wiring.
			If the wiring is OK. – Replace the proximity switch.
473	**Low suction B12**	Filter system is not running.	Put the filter system in service again.
		Vacuum pressure	If the vacuum is correct.

Fault Code	Fault Text	Cause	Remedy
		– Adjust the vacuum pressure for the card suction (*refer to* ▸ *223*).	– Adjust the vacuum monitoring (*refer to* ▸ *177*).
			If the vacuum pressure is insufficient. – Make the analysis of the suction unit.
		Suction unit – Clogging in the suction unit. – Insufficient airflow rate at the suction point, although the suction unit has enough suction.	Remove the clogging in the channels.
		Piping is too small or too long.	Increase the pipe cross-section.
474	**Cylinder not stopped B1**	Braking process – Determine whether the cylinder turns.	If the cylinder still turns and does not brake. – Examine the belt drive. – Adjust the cylinder belt tension (*refer to* ▸ *259*).
			If the cylinder can brake. – Make the analysis of the proximity switch.
		Proximity switch	If the proximity switch is not set correctly. – Examine the adjustment of the proximity switch (*refer to* ▸ *181*).
			If the proximity switch function is impaired. – Examine the wiring.
			If the wiring is OK. – Replace the proximity switch.
475	**Cylinder speed not reached B1**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the driven parts that do not move easily.
		Cylinder – Determine whether the cylinder can be turned by hand.	If the cylinder does not turn freely. – Remove the carding elements in the cylinder area (*refer to* ▸ *570*). – Examine the cylinder clothing for contamination (*refer to* ▸ *494*).
			If the cylinder turns freely. – Clean the pulley.

Fault Code	Fault Text	Cause	Remedy
			– Adjust the cylinder belt tension (*refer to* ▸ *259*).
		Setting procedure – The tolerance is set too low.	Configure the speed monitor for the cylinder (*refer to* ▸ *212*).
476	**Cylinder speed not reached B1**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the driven parts that do not move easily.
		Cylinder – Determine whether the cylinder can be turned by hand.	If the cylinder does not turn freely. – Remove the carding elements in the cylinder area (*refer to* ▸ *570*). – Examine the cylinder clothing for contamination (*refer to* ▸ *494*).
			If the cylinder turns freely. – Clean the pulley. – Adjust the cylinder belt tension (*refer to* ▸ *259*).
		Setting procedure – The tolerance is set too low.	Configure the speed monitor for the cylinder (*refer to* ▸ *212*).
477	**Configuration fixed flats X1.3 A31**	Configuration – In data screen 43.1, determine the configuration.	Configure the type of card flats (*refer to* ▸ *156*).
478	**Configuration fixed flats X1.3 A33/A32**	Configuration – In data screen 43.1, determine the configuration.	Configure the type of card flats (*refer to* ▸ *156*).
479	**Licker-in lift.cyl.pos.not reached M29**	Electric cylinder – Examine the adjustment (*refer to* ▸ *243*).	Adjust the electric cylinder for the mote knife (*refer to* ▸ *243*).
480	**Licker-in lift.cylinder.ref. positon M29**	Electric cylinder – Examine the adjustment (*refer to* ▸ *243*).	Adjust the electric cylinder for the mote knife (*refer to* ▸ *243*).
481	**Licker-in lift.cylinder cable break D13**	Cable breakage – Check the connection between lift cylinder and module A20.	If the connection is interrupted. – Install a cable connection.

Fault Code	Fault Text	Cause	Remedy
482	**Cylinder motor overheated M1**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the driven parts that do not move easily.
		Cylinder – Determine whether the cylinder can be turned by hand.	If the cylinder does not turn freely. – Remove the carding elements in the cylinder area (*refer to* ▸ *570*). – Examine the cylinder clothing for contamination and cleaning *(refer to)* ▸ *494*.
			If the cylinder turns freely. – Clean the pulley. – Adjust the cylinder belt tension *(refer to)* ▸ *259*.
		The motor is damaged. Motor consumes too much current.	Replace the motor.
483	**Licker-in rotating speed too high B9**	Change pulleys (**Option:** cylinder drive with belt pulley)	Adjust the licker-in speed (*refer to* ▸ *210*).
		Proximity switch	If the proximity switch is set incorrectly. – Adjust the proximity switch for the licker-in (*refer to* ▸ *180*).
			If the proximity switch function is impaired. – Examine and repair the wiring.
			If the wiring is OK. – Replace the proximity switch.
484	**MPS, flats, drives, Q50 Q57 Q58**	Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips frequently even if the drive is mechanically in order. – Replace the motor protection switch
		Mechanical reason – Load torque of individual axis is too large.	– Separate parts of the drive and try to move them individually.

Fault Code	**Fault Text**	**Cause**	**Remedy**
		– Drive runs sluggishly.	– Repair or replace the parts that do not move easily.
485	**IGS-cl. proximity sw. position left B51**	Mechanical features – Do a function test for IGS-Classic (*refer to* ▸ *528*).	If a mechanical cause in the guide carriage prevents movement. – Clean the guide carriage. – Repair or replace the guide, if necessary. – Replace the guide carriage (*refer to* ▸ *519*).
		Proximity switch	If the proximity switch is defective. – Examine and repair the wiring. If the wiring of the proximity switch is OK. – Replace the proximity switch.
486	**IGS-cl. proximity sw.position right B52**	Mechanical features – Do a function test for IGS-Classic (*refer to* ▸ *528*).	If a mechanical cause in the guide carriage prevents movement. – Clean the guide carriage. – Repair or replace the guide, if necessary. – Replace the guide carriage (*refer to* ▸ *519*).
		Proximity switch	If the proximity switch is defective. – Examine and repair the wiring. If the wiring of the proximity switch is OK. – Replace the proximity switch.
487	**IGS-classic not in park position B52**	Mechanical features – Do a function test for IGS-Classic (*refer to* ▸ *528*).	If a mechanical cause in the guide carriage prevents movement. – Clean the guide carriage. – Repair or replace the guide, if necessary. – Replace the guide carriage (*refer to* ▸ *519*).
		Proximity switch	If the proximity switch is defective. – Examine and repair the wiring. If the wiring of the proximity switch is OK. – Replace the proximity switch.
488	**MPS, flats, drives on, Q50,Q57,Q58**	Motor protection switch are still switched on.	Switch off the motor protection switch.

Fault Code	Fault Text	Cause	Remedy
			Additional information: The test of the digital outputs can only be executed when the motor protection switch is switched off.
489	**IGS-classic grindstone position S53**	Electromagnet – Check the voltage on the electromagnet.	If the voltage is present and electromagnet does not raise grindstone. – Replace the electric magnet (*refer to ▸ 515*). – Adjust the height of the grinding stone (*refer to ▸ 526*).
490	**MPS power supply 24 VDC F2**	Motor protection switch – Check licker-in lifting cylinder. – Check IGS-Classic motor. – Check circulation fan in the control cabinet.	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that do not move easily.
491	**MPS power supply 24 VDC on F2**	The motor protection switches are still switched on.	– Switch off the motor protection switch. Additional information: The test of the digital outputs can only be executed when the motor protection switch is switched off.
492	**MPS IGS-top grinding drive Q55**	Grinding pressure – Check current consumption (with grinding brush contact on the card flats clothing) (*refer to ▸ 532*).	If the grinding pressure is too high. – Decrease the grinding pressure (*refer to ▸ 533*). Additional information: If the excessive current draw continues, the mechanical basic setting must be increased to 4.5 -5.0.
			If the grinding pressure is too low. – Increase the grinding pressure (*refer to ▸ 533*). Additional information: If the grinding pressure is still insufficient, the mechanical basic setting must be reduced to 3.5 -3.0.

Fault Code	Fault Text	Cause	Remedy
		Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason. If the motor protection switch trips recurrently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that do not move easily.
493	**MPS IGS-top grinding drive on Q55**	The motor protection switches are still switched on.	– Switch off the motor protection switch. Additional information: The test of the digital outputs can only be executed when the motor protection switch is switched off.
494	**IGS-classic motor fails to start M51**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that do not move easily.
		Motor is damaged. – Motor consumes too much current.	Replace the motor.
		Pneumatic connection is interrupted.	Check the air line.
		Air pressure of the supply line is not sufficient.	Make sure that the air pressure of supply line is between 7.0 – 8.0 bar.
495	**IGS-top cable breakage, curr. meas. D55**	The module A 20 (D95K) is not defective.	– Examine the power converter D 55. – Replace the power converter D 55 if necessary.
		The module A 20 (D95K) is defective.	– Replace the control module D95K (*refer to* ▸ *168*).
496	**IGS-top grinding force too high**	Grinding pressure – Check current consumption (with grinding brush contact on the card flats clothing) (*refer to* ▸ *532*).	If the grinding pressure is too high. – Decrease the grinding pressure (*refer to* ▸ *533*). Additional information: If the excessive current draw continues, the mechanical basic setting must be increased to 4.5 -5.0.

Fault Code	Fault Text	Cause	Remedy
			If the grinding pressure is too low. – Increase the grinding pressure (*refer to* ▸ *533*). Additional information: If the grinding pressure is still insufficient, the mechanical basic setting must be reduced to 3.5 -3.0.
497	**Malfunction suction licker-in S9**	Filter system is not running.	Put the filter system in service again.
		Vacuum pressure – Adjust the vacuum pressure for the card suction (*refer to* ▸ *223*).	If the vacuum is correct. – Adjust the vacuum monitoring (*refer to* ▸ *177*).
			If the vacuum pressure is insufficient. – Make the analysis of the suction unit.
		Suction unit – Clogging in the suction unit. – Insufficient airflow rate at the suction point, although the suction unit has enough suction.	Remove the clogging in the channels.
		Piping is too small or too long.	Increase the pipe cross-section.
498	**Flats clear.roller1,contactor forw. K56**	The relay does not switch. – Get the services of a qualified electrician. – Check function of the relay.	If the relay is defective. – Replace the relay.
			If the relay is OK. – Examine the control signal and wiring.
		Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
499	**MPS, flat clearer roller 2 blocked, Q57**	Flat disposal chamber: The flat disposal chamber is clogged.	Clean the suction channel (*refer to* ▸ *469*).
		Suction unit – Clogging in the suction unit.	Remove the clogging in the suction channels.

Fault Code	Fault Text	Cause	Remedy
		– Insufficient airflow rate at the suction point, although the suction unit has enough suction.	
		Motor protection switch	If the motor protection switch has tripped once. – Make the analysis of the mechanical reason.
			If the motor protection switch trips frequently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason: – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the driven parts that do not move easily.
500	**Chute f.roll FC parameter incorrect U41** **Op.roller FC, parameter incorrect U42** **FC compr.rollers, parameter incorr. U80** **Crd. FC f.roll, parameter incorrect U10** **FC delivery, parameter incorrect U12** **FC doffer, parameter incorrect U11** **FC coiler parameters incorrect U60**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*).

Fault Code	Fault Text	Cause	Remedy
	FC licker-in, parameter incorrect U13 **FC cylinder, parameter incorrect U1** **Flats FC, faulty parameters, U50** **FC delivery, parameter incorrect U12** **FC RSB, parameter incorrect U3**		– Configure the frequency converter (*refer to* ▸ *614*).
501	**Chute f.roll FC,communicat .shutdown U41** **Crd. FC f.roll, communicat.shutdown U10** **FC licker-in, communic. shutdown U13** **FC cylinder, communication shutdown U1** **FC delivery, communication shutdown U12** **Flats FC, communic. interrupt., U50** **FC doffer, communication shutdown U11**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).

Fault Code	Fault Text	Cause	Remedy
	FC coiler communications shutdown U60		
502	**Chute f.roll FC CAN node stat. inc. U41** **Crd.FC f.roll CAN node status wrong U10** **FC licker-in, CAN node status U13** **FC cylinder, CAN node status incorr.U1** **FC delivery, CAN node status incorr.U12** **Flats FC, incorrect CAN status, U50** **FC doffer,CAN node status incorrect U11** **FC coiler CAN node status incorrect U60**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).
503	**Chute f.roll FC mot.overcurrent M41 U41** **Op.roller FC, motor overcurrent M42 U42**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
		Wrong wiring	Examine the wiring.
		Motor is damaged. – Motor consumes too much current.	Replace the motor.

Fault Code	Fault Text	Cause	Remedy
	FC compr.rlrs.,overcurrent,M80 mot. U80 **Crd.FC f.roll motor overcurrent M10 U10** **FC delivery overcurrent, motor M12 U12** **FC doffer, overcurrent motor M11 U11** **FC coiler overcurrent motor M1 U60** **FC licker-in, overcurrent,M13 motor U13** **FC cylinder, overcurrent, motor M1 U1** **Flats FC, overcur., M50, M58 mots., U50** **FC RSB, motor overcurrent M1 U3**		
504	**Chute f.roll FC converter overload U41** **Op.roller FC, converter overload U42** **FC compr.rollers, convert. overload U80**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
		Drive belt	If the drive belt is insufficiently tensioned. – Tension the drive belt. – Check and tighten the toothed belts (refer to).
			If the drive belt is worn.

Fault Code	Fault Text	Cause	Remedy
	Crd. FC f.roll overload, converter U10 **FC delivery, overload, converter U12** **FC doffer overload, converter U11** **FC coiler overload converter U60** **FC licker-in, overload, converter U13** **FC cylinder, overload, converter U1** **Flats FC, overload, converter, U50** **FC delivery, overload, converter U12** **FC RSB, overload, converter U3**		– Replace the drive belt.
508	**Chute f.roll FC conv. earth fault U41** **Op.roller FC earth fault, converter U42** **FC compr.rollers, convert.earthing U80**	Insulation: Short to earth due to damaged insulation	– Ask electrician for help. – Examine the cabling for the insulation damage. – Replace the damaged cable.

Fault Code	Fault Text	Cause	Remedy
	Crd.FC f.roll earth fault converter U10 **FC delivery, earth fault, converter U12** **FC doffer, earth fault, converter U11** **FC coiler earth fault converter U60** **FC licker-in, earth fault,converter U13** **FC cylinder, earth fault, converter U1** **Flats FC, earth fault, converter, U50** **FC delivery, earth fault, converter U12** **FC RSB, earth fault, converter U3**		
510	**Chute f.roll FC phase fail.p.supply U41** **Op.roller FC phase failure,p.supply U42** **FC compr.rlrs., ph.failure,p.sup ply U80**	Unstable electrical grid	– Ask electrician for help. – Examine the pre-fusing of the grid and the line power.
		Electric motor – Ask electrician for help.	If the electric motor runs on two phases only. – Examine the power supply. – Tighten the terminals again.
			If the short circuit occurs in motor. – Replace the motor.
		Frequency converter hardware	– Ask electrician for help.

Fault Code	Fault Text	Cause	Remedy
	Crd. FC f.roll phase fail. p.supply U10 **FC delivery, phase failure,p.supply U12** **FC doffer, phase failure, p. supply U11** **FC coiler phase failure p.supply U60** **FC licker-in,phase failure,p.supply U13** **FC cylinder, phase failure,p.supply U1** **Flats FC, phase failure, network, U50** **FC delivery, phase failure,p.supply U12** **FC RSB, phase failure, power supply U3**		– Do a function test of the frequency converter (*refer to* ▸ *172*). – Replace the frequency converter (*refer to* ▸ *610*).
511	**Chut.f.roll FC interm.circ.over volt.U41** **Op.roller FC overvolt. interm.circ. U42**	Electrical grid voltage	– Ask electrician for help. – If the electrical grid voltage is too high, make sure that the grid voltage is correct.

Fault Code	Fault Text	Cause	Remedy
	FC compr.rlrs.,overvolt.interm.circ. U80 **Crd. FC f.roll, overvolt.interm.cir.U10** **FC delivery, overvolt. interm.circ. U12** **FC doffer, overvoltage, interm.circ.U11** **FC coiler overvoltage interm. circ. U60** **FC licker-in,overvolt.,interm.circ. U13** **FC cylinder, overvolt.intermed.circ.U1** **Flats FC, overvolt., interm. circ., U50** **FC delivery, overvolt. interm.circ. U12** **FC RSB, overvoltage, intermed. circ.U3**		
512	**Chu.f.roll FC interm.circ.undervolt.U41**	Electrical grid	– Ask electrician for help. – If the power supply is off for short term, make sure that the power supply is stable and the voltage is correct.

Fault Code	Fault Text	Cause	Remedy
	Op.roller FC undervolt. interm.circ.U42 **FC compr.rlrs., underv.interm.circ. U80** **Crd. FC f.roll undervolt.intrm. circ U10** **FC delivery, undervolt. interm.circ U12** **FC doffer, undervolt. interm.circ. U11** **FC coiler undervoltage interm.circ. U60** **FC licker-in, undervolt.interm.circ U13** **FC cylinder,undervolt.intermed.circ.U1** **Flats FC, undervolt., interm.circ., U50** **FC delivery, undervolt.interm.circ. U12** **FC RSB, undervoltage, intermed.circ.U3**	Electrical grid voltage	– Ask electrician for help. – If the electrical grid voltage is too low, make sure that the grid voltage is correct.
		Electric motor – Ask electrician for help.	If the electrician motor runs on two phases only. – Examine the power supply. – Tighten the terminals again.
			If short circuit occurs in motor. – Replace the motor.
513	**Chute f.roll FC loading cont.faulty U41**	Charging contactor – Ask electrician for help.	If the switching fails. – Set the main switch to the position OFF. – Set the main switch to the position ON.

Fault Code	Fault Text	Cause	Remedy
	Op.roller FC loading cntctr. faulty U42 **FC compr.rlrs., load contact.faulty U80** **Crd. FC f.roll loading cntr. faulty U10** **FC delivery, loading contact.faulty U12** **FC doffer, loading contactor faulty U11** **FC coiler loading contactor faulty U60** **FC licker-in, load contactor faulty U13** **FC cylinder, load. contactor faulty U1** **Flats FC,faulty charging contactor, U50** **FC delivery, loading contact.faulty U12** **FC RSB, loading contactor faulty U3**		– Try again.
			If the coil is burned out or the contactor has another defect. – Replace the frequency converter (*refer to ▸ 610*). – Try again.

Fault Code	Fault Text	Cause	Remedy
514	**Chute f.roll FC inter. phase output U41** **Op.roller FC, interrupt.phase o.put U42** **FC compr.rlrs.,interrup.,phase outp.U80** **Crd. FC f.roll, interr.phase output U10** **FC delivery, interrupt.phase output U12** **FC doffer, interruption phase outputU11** **FC coiler interruption phase output U60** **FC licker-in, interrup.,phase outp. U13** **FC cylinder,interrupt.,phase output U1** **Flats FC,interrupt., phase, output, U50** **FC delivery, interrupt.phase output U12**	Cable – Ask electrician for help.	If the cable does not contact. – Examine the wires of the cable connection to the motor. – Connect the output terminals correctly.
		Motor – Ask electrician for help.	If power of the motor is too weak, examine the motor.

Fault Code	Fault Text	Cause	Remedy
	FC RSB, interruption, phase output U3		
515	**Chute f.roll FC overheating, h.sink U41** **Op.roller FC, overheating,heat sink U42** **FC compr.rlrs., overheat. heat sink U80** **Crd. FC f.roll, overheat. heat.sink U10** **FC delivery, overheating, heat sink U12** **FC doffer, overheating, heat sink U11** **FC coiler overheating heat sink U60** **FC licker-in, overheating,heat sink U13** **FC cylinder, overheating,heat sink U1** **Flats FC, overtemp., heat sink, U50** **FC delivery, overheating, heat sink U12**	Cooling plate – Ask electrician for help.	If the cooling plate is not connected. – Connect the cooling plate with the heat transfer compound. – Adapt the frequency converter to the cooling system (*refer to* ▸ *613*).
			If the cooling plate is blocked. – Clean the house of the frequency converter with the vacuum cleaner by the electrician. – Clean the cooling plate at the rear side of the control cabinet. – Adapt the frequency converter to the cooling system (*refer to* ▸ *613*).
		Climate	If the ambient temperature is too high. – Lower the ambient temperature.
			Final measure – Lower the power. – Reduce production. – Reduce the speed of drive.

Fault Code	Fault Text	Cause	Remedy
	FC RSB, overheating, heat sink U3		
520	**Chute f.roll FC,fault,brake.transis.U41** **Op.roller FC, fault, brak.transist. U42** **FC compr.rlrs., fault brak.transis. U80** **Crd. FC f.roll, fault braking trans.U10** **FC delivery, fault,braking transist.U12** **FC doffer, fault,braking transistor U11** **FC coiler error brake transistor U60** **FC licker-in,fault,braking transis. U13** **FC cylinder, fault,braking transist.U1** **Flats FC,fault, braking transistor, U50** **FC delivery, fault,braking transist.U12**	Frequency converter hardware	– Ask electrician for help. – Do a function test of the frequency converter (*refer to* ▸ *172*). – Replace the frequency converter (*refer to* ▸ *610*).

Fault Code	Fault Text	Cause	Remedy
	FC RSB, fault, braking transistor U3		
521	**Chute f.roll FC, ext.fault chain U41** **Crd. FC f.roll, ext. fault chain U10** **FC licker-in, ext. fault chain, U13** **FC cylinder,external fault chain U1** **FC delivery,external fault chain U12** **Flats FC, external alarm trip, U50** **FC doffer, external fault chain U11** **FC coiler external fault chain U60**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).
522	**Chute f.roll FC motor overheating M41** **Op.roller FC, overheating, motor M42** **FC compr.rlrs., overheating, motor M80**	Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace the parts that do not move easily.
		Frequency converter hardware	– Ask electrician for help. – Do a function test of the frequency converter (*refer to* ▸ *172*).

Fault Code	Fault Text	Cause	Remedy
	Crd. FC f.roll, overheating motor M10		– If the frequency converter hardware is defective, replace the frequency converter (*refer to* ▸ *610*).
	FC delivery, overheating, motor M12 **FC coiler overheated motor M1** **FC licker-in, overheating, motor M13** **FC cylinder, overheating, motor M1** **Flats FC, overtemp., motors, M50 M58** **FC delivery, overheating, motor M12** **FC RSB, overheating, motor M1** **FC doffer, overheating, motor M11**	Motor temperature monitor – Temperature not too high – False alarm – Signal not correct	– Ask electrician for help. – Examine the motor temperature monitor. – Check motor cable and wiring.
527	**Chute f.roll FC,fault,optional card U41** **Crd. FC f.roll, fault,optional card U10** **FC licker-in, fault, optional card U13**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter	– Ask electrician for help.

Fault Code	Fault Text	Cause	Remedy
	FC cylinder, fault, optional card U1 **FC delivery, fault, optional card U12** **Flats FC, fault, option card, U50** **FC doffer, fault, optional card U11** **FC coiler fault optional card U60**	– CAN bus is defective.	– If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).
533	**Chute f.roll FC, torque standstill U41** **Crd. FC feed roll,torque standstill U10** **FC licker-in, torque standstill U13** **FC cylinder, torque standstill U1** **FC delivery, torque standstill U12** **Flats FC, torque, standstill, U50** **FC doffer, torque standstill U11** **FC coiler torque standstill U60**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).

Fault Code	Fault Text	Cause	Remedy
537	**Chute f.roll FC conv.hardware fault U41** **Crd.FC f.roll, conv.,hardware fault U10** **FC licker-in, conv., hardw. fault U13** **FC cylinder, converter, hardw.fault U1** **FC delivery, converter, hardw.fault U12** **Flats FC,converter, hardware fault, U50** **FC doffer, converter,hardware fault U11** **FC coiler converter hardware fault U60**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).
540	**Chute f.roll FC, wrong conv. type U41** **Op.roller FC, incorr.converter type U42** **FC compr.rlrs, incorr.convert.type U80** **Crd. FC f.roll wrong converter type U10**	Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter type.

Fault Code	Fault Text	Cause	Remedy
	FC delivery, incorr. converter type U12		
	FC doffer, incorrect converter type U11		
	FC coiler wrong converter type U60		
	FC licker-in, incorr. convert. type U13		
	FC cylinder, incorr. converter type U1		
	Flats FC, incorrect converter type, U50		
	FC delivery, incorr. converter type U12		
	FC RSB, incorrect converter type U3		
	Chute f.roll FC,fault,optional card U41		
	Crd. FC f.roll, fault,optional card U10		
	FC licker-in, fault, optional card U13		

Fault Code	Fault Text	Cause	Remedy
	FC cylinder, fault, optional card U1 **FC delivery, fault, optional card U12**		
541	**Chute f.roll FC, unrecognised fault U41** **Crd. FC feed roll, unrecogn. fault U10** **FC licker-in, unrecognised fault U13** **FC cylinder, unrecognised fault U1** **FC delivery, unrecognised fault U12** **Flats FC, unknown fault, U50** **FC doffer, unrecognised fault U11** **FC coiler unknown error U60**	Frequency converter hardware – Call electrician. – Do the function test of the frequency converter (*refer to* ▸ *172*).	If the test is failed. – Replace the frequency converter (*refer to* ▸ *610*).
		CAN bus, Terminating resistor: – Resistor missing – Wrong setting – Wrong connection	– Ask electrician for help. – Make sure that the terminating resistor is set according to the electrical documentation.
		Frequency converter – CAN bus is defective.	– Ask electrician for help. – If the CAN bus is defective, replace the frequency converter (*refer to* ▸ *610*)
		Frequency converter – Wrong type	– Ask electrician for help. – Identify the frequency converter (*refer to* ▸ *610*). – Install the correct frequency converter.
		Frequency converter communication – Frequency converter communication is interrupted.	– Ask electrician for help. – Assign parameters for the frequency converter T1000V (*refer to* ▸ *615*). – Configure the frequency converter (*refer to* ▸ *614*).
542	**FC RSB, base block input U3 K21** **Op.roller FC, safety input U42 K42**	Relay does not switch. – Get the services of a qualified electrician. – Check function of the relay.	If the relay is defective. – Replace the relay.
			If the relay is OK. – Check control signal and wiring.
		Frequency converter hardware	– Ask electrician for help. – Do a function test of the frequency converter (*refer to* ▸ *172*).

Fault Code	Fault Text	Cause	Remedy
	FC compress. rollers, saf.input U80 K80 **Crd. FC feed roll, safety input U10 K10** **FC delivery, base block input U12 K26** **FC doffer, base block input U11 K26** **FC coiler, safety input U60 K60** **FC licker-in, safety input U13 K13** **FC for cylinder, safety input U1 K1** **FC for cylinder, safety input U1 K1** **Flats FC, safety input U50 K50** **FC RSB, base block input U3 K21** **Chute f.roll FC, safety input U41 K41**		– If the frequency converter hardware is defective, replace the frequency converter (*refer to* ▸ *610*).
543	**Crd. FC, feed roll, metal detected U10**	Foreign metal between the feed trough and the feed roller	Remove the metal from the machine (*refer to* ▸ *357*).
551	**Low battery A10**	The battery is discharged.	Replace the battery in the control system (*refer to* ▸ *166*).

Fault Code	Fault Text	Cause	Remedy
560	**EMERG-OFF button card, EMERG-OFF tst**	Emergency stop button – Determine and eliminate the cause of the emergency stop button.	If the emergency stop button is activated. – Turn the emergency stop button clockwise to release the emergency stop button If the emergency stop button is not activated. – Tell the plant electrician and examine the wiring. – Do a function test of the safety relay (*refer to* ▸ *172*).
561	**Lock doors, test EMERG-OFF circuit**	Emergency stop button – Determine and eliminate the cause of the emergency stop button.	If the emergency stop button is activated. – Turn the emergency stop button clockwise to release the emergency stop button If the emergency stop button is not activated. – Tell the plant electrician and examine the wiring. – Do a function test of the safety relay (*refer to* ▸ *172*).
565	**Card ready for ramp-up**	The web (sliver) is pulled in.	Change the machine to the high-gear motion.
566	**Ext.EMER.-OFF,test EMER.-OFF circuit**	Emergency stop button – Determine and eliminate the cause of the emergency stop button.	If the emergency stop button is activated. – Turn the emergency stop button clockwise to release the emergency stop button If the emergency stop button is not activated. – Tell the plant electrician and examine the wiring. – Do a function test of the safety relay (*refer to* ▸ *172*).
568	**S6 key sw., EMERG. SHUTD. circ. test**	Key switch – Production operation is tried. – Key switch is at position II (grind card flats).	Set the key switch to the position I.
574	**D95K Spectrogram inactive !!!**	Incorrect checksum of the program, program destroyed	– Replace the control module D95K (*refer to* ▸ *168*).

Fault Code	Fault Text	Cause	Remedy
			– Tell the customer service of RIETER Machine Works Ltd.
		The module A 20 (D95K) is defective.	Replace the control module D95K (*refer to* ▸ *168*).
576	**Prox. switch, carrier centre defect B16**	The function of the magnet switch is not correct.	– Examine the magnetic switch. – Adjust the magnetic switch for the can trolley drive (*refer to* ▸ *325*).
580	**Prox. switch, carrier centre defect B8**	The function of the magnet switch is not correct.	– Examine the magnetic switch. – Adjust the magnetic switch for the can trolley drive (*refer to* ▸ *325*).
581	**Sliver cutting delay**	Sequence – sliver cutting	If the sliver funnels lift at the incorrect time. – Set the delay time for sliver cutting (*refer to* ▸ *305*).
			If the clamping duration is incorrect. – Set the correct clamping time interval (*refer to* ▸ *305*).
		Incorrect sliver cutting procedure.	Adjust the time of the sliver cutting operation (*refer to* ▸ *303*).
596	**Standard draft too small**	Web – Web falls off the doffer. – Web is extracted.	– Examine the doffer status. – Do the visual inspection and the analysis of the clothing (*refer to* ▸ *490*). – Grind the doffer. Possible causes: The grinding roller was too forcefully advanced against the toothed tips or the grinding stones are dull.
		Suction unit – Poor air ratios in the delivery unit	Adjust the air ratios in the discharge unit until the web is not suctioned.
		Measuring device in the feed – Measuring device is set incorrectly.	Adjust the sensor in the feed unit (refer to).
		Feed trough in chute	If the feed trough load is incorrect. – Adjust the feed trough load (*refer to* ▸ *229*).
			If the feed trough jams.

Fault Code	Fault Text	Cause	Remedy
			– Adjust the feed trough for a minimum distance (*refer to* ▸ *229*).
597	**Standard draft too large**	Batt is too heavy.	If chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*).
			If chute is overfilled. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
		Feed trough in chute	If the feed trough load is incorrect. – Adjust the feed trough load (*refer to* ▸ *229*).
			If the feed trough jams. – Adjust the feed trough for a minimum distance (*refer to* ▸ *229*).
		Measuring device in the feed – Measuring device is set incorrectly.	Adjust the sensor in the feed unit (refer to).
598	**Blowroom production too low**	--	--
599	**Thread sliver through disc rollers**	--	--
604	**IGS-classic solenoid cooling**	Lifting magnet The lifting magnet is too hot for additional cycle.	Wait until the lifting magnet cools down.
606	**IGS-cl. max. grinding cycles reached**	Service life – cylinder clothing – Visual inspection and evaluation of the clothing (*refer to* ▸ *490*).	If the cylinder clothing is worn out. – Replace the cylinder clothing (*refer to* ▸ *496*).
			If the cylinder clothing is not sharp, but not yet worn out. – Examine the grinding stone (*refer to* ▸ *515*).

Fault Code	Fault Text	Cause	Remedy
607	**IGS-classic cycle incomplete B51**	Flat belt The flat belt is insufficiently tensioned.	Adjust the flat belt with the tension screws (*refer to* ▸ *525*).
		Mechanical features – Do a function test of IGS-Classic (*refer to* ▸ *528*).	If a mechanical cause in the guide carriage prevents movement. – Clean the guide carriage. – Replace the guide carriage if necessary (*refer to* ▸ *519*).
608	**IGS-classic inactive (fault)**	Flat belt The flat belt is insufficiently tensioned.	Adjust the flat belt with the tension screws (*refer to* ▸ *525*).
		Mechanical features – Do a function test of IGS-Classic (*refer to* ▸ *528*).	If a mechanical cause in the guide carriage prevents movement. – Clean the guide carriage. – Replace the guide carriage if necessary (*refer to* ▸ *519*).
609	**IGS-top max. grinding cycles reached**	Service life – card flat clothing – Determine whether the card flat clothing must be ground (*refer to* ▸ *500*).	If the card flat clothing is worn out but still can be ground. – Prepare the machine to grind the card flats (*refer to* ▸ *502*).
			If the card flat clothing is worn out. – Replace the card flat clothing. – Remove the card flats (*refer to* ▸ *510*).
			If the card flat clothing is not yet worn out, merely incorrectly configure. – Change the service life of the card flat clothing (*refer to* ▸ *530*). – See the information: Service life and grinding cycles *(refer to)* ▸ *537*.
610	**IGS-top cycle aborted**	Operator – The machine has been stopped during the grinding cycle.	The grinding cycle will be continued automatically after machine starts.
		Grinding pressure	If the grinding pressure is too high. – Decrease the grinding pressure (*refer to* ▸ *533*).

Fault Code	Fault Text	Cause	Remedy
		– Check current consumption (with grinding brush contact on the card flats clothing) (*refer to* ▸ *532*).	Additional information: If excessive current draw continues, the mechanical basic setting must be increased to 4.5 – 5.0.
			If the grinding pressure is too low. – Increase the grinding pressure (*refer to* ▸ *533*). Additional information: If the grinding pressure is still insufficient, the mechanical basic setting must be decreased from 3.5 to 3.0.
		Motor protection switch	If the motor protection switch has tripped once. – Make analysis of the mechanical reason.
			If the motor protection switch trips recurrently even if the drive is mechanically in order. – Replace the motor protection switch.
		Mechanical reason – Load torque of individual axis is too large. – Drive runs sluggishly.	– Separate parts of the drive and try to move them individually. – Repair or replace driven parts that do not move easily.
611	**Licker-in lift. cylinder blocked M29**	Electric cylinder – Examine the adjustment (*refer to* ▸ *243*).	Adjust the electric cylinder for the mote knife (*refer to* ▸ *243*).
612	**IGS-top grinding force too high**	Grinding pressure – Check current consumption (with grinding brush contact on the card flats clothing) (*refer to* ▸ *532*).	If the grinding pressure is too high. – Decrease the grinding pressure (*refer to* ▸ *533*). Additional information: If the excessive current draw continues, the mechanical basic setting must be increased to 4.5 -5.0.
			If the grinding pressure is too low. – Increase the grinding pressure (*refer to* ▸ *533*). Additional information: If the grinding pressure is still insufficient, the mechanical basic setting must be reduced to 3.5 -3.0.

Fault Code	Fault Text	Cause	Remedy
613	**IGS-top grinding force too low**	Grinding pressure – Check current consumption (with grinding brush contact on the card flats clothing) (*refer to* ▶ *532*).	If the grinding pressure is too high. – Decrease the grinding pressure (*refer to* ▶ *533*). Additional information: If the excessive current draw continues, the mechanical basic setting must be increased to 4.5 -5.0.
			If the grinding pressure is too low. – Increase the grinding pressure (*refer to* ▶ *533*). Additional information: If the grinding pressure is still insufficient, the mechanical basic setting must be reduced to 3.5 -3.0.
614	**IGS-top inactive (fault)**	Adjustment of IGS-Top	If the position of the brush is not adjusted. – Examine the position of the grinding brush (*refer to* ▶ *535*).
			If the position of the brush is adjusted. – Make analysis of the grinding pressure.
		Grinding pressure – Check current consumption (with grinding brush contact on the card flats clothing) (*refer to* ▶ *532*).	If the grinding pressure is too high. – Decrease the grinding pressure (*refer to* ▶ *533*). Additional information: If the excessive current draw continues, the mechanical basic setting must be increased to 4.5 -5.0.
			If the grinding pressure is too low. – Increase the grinding pressure (*refer to* ▶ *533*). Additional information: If the grinding pressure is still insufficient, the mechanical basic setting must be reduced to 3.5 -3.0.
616	**Carding gap measurement, position 1**	Measuring mode – card flat – The mode is active. – Carding gap measurement is at position 1. – The message **Carding gap measurement, position 1** will be shown.	Adjust the card flats (*refer to* ▶ *270*).

Fault Code	Fault Text	Cause	Remedy
617	**Carding gap measurement, position 2**	Measuring mode – card flat – The mode is active. – Carding gap measurement is at position 1. – The message **Carding gap measurement, position 1** will be shown.	Adjust the card flats (*refer to* ▸ *270*).
618	**Carding gap measurement, position 3**	Measuring mode – card flat – The mode is active. – Carding gap measurement is at position 1. – The message **Carding gap measurement, position 1** will be shown.	Adjust the card flats (*refer to* ▸ *270*).
619	**Carding gap measurement, position 4**	Measuring mode – card flat – The mode is active. – Carding gap measurement is at position 1. – The message **Carding gap measurement, position 1** will be shown.	Adjust the card flats (*refer to* ▸ *270*).
620	**Carding gap measurement, position 5**	Measuring mode – card flat – The mode is active. – Carding gap measurement is at position 1. – The message **Carding gap measurement, position 1** will be shown.	Adjust the card flats (*refer to* ▸ *270*).
621	**Meas. pos. approach, carding gap**	Measuring mode – card flat – The mode is active. – Carding gap measurement is at position 1. – The message **Carding gap measurement, position 1** will be shown.	Adjust the card flats (*refer to* ▸ *270*).

Fault Code	Fault Text	Cause	Remedy
623	**Select chute `pressure level 1`**	Configuration	– Examine the configuration. – Set the batt weight *(refer to)* ▸ *225*.
624	**Select chute `pressure level 2` 41.4**	Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
625	**Select chute `pressure level 3` 41.4**	Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
626	**Select chute `pressure level 4` 41.4**	Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
627	**Increase chute `batt weight`**	Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
628	**Reduce chute `batt weight` 41.4**	Configuration	– Examine the configuration. – Set the batt weight (*refer to* ▸ *225*).
629	**Reduce distance chamber wall chute**	Batt is too heavy.	If chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*).
			If chute is overfilled. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
630	**Increase distance chamber wall chute**	Batt is too light.	If chute is set too wide. – Adjust the batt weight through the position of the card chute wall (*refer to* ▸ *224*).
			If chute runs empty. – Adjust the pressure monitoring sensor (*refer to* ▸ *179*).
			If target pressure is too low, because of the high material separation and low material density. – Examine the batt weight (*refer to* ▸ *226*).

Fault Code	Fault Text	Cause	Remedy
631	**Activate clothing of doffer (70.2)**	Doffer clothing	– Use the ASG (Doffer Resharpening Device) from Graf to do the activation of the doffer wire. – In the data screen 70.2, select **Activated** in the field **Doffer clothing**.
632	**Flat clearer roller 2, stop cycle 1**	--	--
633	**Flat clearer roller 2, stop cycle 2**	--	--

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8 Maintenance

This chapter contains the information about the maintenance of the machine.

8.1 Intended Purpose of the Maintenance Chapter

To plan the maintenance work.

To obey the maintenance schedule.

To repair the machine and to start the machine without material.

8.2 General Information

Only Rieter-approved personnel are permitted to do the maintenance works at the machine.

The maintenance works include cleaning works, lubrication works, and inspection works.

The operating hours that follow are guide values.

Operating Hours	Duration in a 3-Shift Operation
165	1 week
330	2 weeks
660	4 weeks
2 000	3 months
4 000	6 months
8 000	1 year

Safety Regulations

⚠ **WARNING**

Moving machine components!

Risk of hand injury

- ▶ Do NOT touch the machine components that move.
- ▶ Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- ▶ When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

The prerequisites for the repair work are as follows:

- – The main switch is set to the position OFF and the main switch is padlocked.
- – The emergency stop button is unlocked.
- – All doors and all covers are open.

8.3 Cleaning Table by Cycle

Target group	Cleaning cycle	Additional information	
Operator	Cleaning each 4 - 8 h	8.6.1.1	Cleaning the Delivery Unit
		8.6.1.2	Cleaning the Delivery Rollers
		8.6.1.3	Cleaning the Stripping Blades
		8.6.7.2	Cleaning the Web Bridge
	Cleaning each 165 h	8.6.2.1	Cleaning the Filter Box
		8.6.2.2	Cleaning the Suction Points
		8.6.2.3	Cleaning the Crossbars
		8.6.2.4	Cleaning the Card
		8.6.2.5	Cleaning the Area of the Calender Rollers
		8.6.2.6	Cleaning the Coiler Tube
	Cleaning each 330 h	8.6.3.2	Cleaning the Card Flat Clothing
		8.6.3.4	Cleaning the Doffer
		8.6.3.5	Cleaning the Deflection Areas of the Card Flats
		8.6.3.6	Cleaning the Suction Duct
		8.6.3.7	Cleaning the Clearer Roller PW1
	Cleaning each 660 h	8.6.4.1	Removing the Honeydew
	Cleaning each 2 000 h	8.6.5.1	Cleaning the Rubber Seals
		8.6.5.2	Cleaning the Carding Profiles
		8.6.5.3	Cleaning the Feed Channel
		8.6.5.4	Cleaning the Cover Trim below the Feed Roller
		8.6.5.5	Cleaning the Suction Duct below the Disk Rollers
		8.6.5.6	Cleaning the Cylinder
		8.6.5.7	Cleaning the Clearer Roller
		8.6.5.8	Cleaning the Belts and the Chains
		8.6.5.10	Cleaning the Frequency Converter
		8.6.5.11	Cleaning the Coiler Drive and the Can Plate Drive
	Cleaning related to the material	6.8.10.4	Removing Blockages in the Card Chute
		8.6.7.1	Cleaning the Card Chute
Maintenance Personnel	Cleaning each 4 - 8 h	8.6.7.2	Cleaning the Web Bridge
	Cleaning each 330 h	8.6.3.1	Cleaning the Top Part of the Air Separator
	Cleaning each 2 000 h	8.6.5.9	Cleaning the Card Flat Heads

Target group	Cleaning cycle	Additional information	
	Cleaning each 8 000 h	8.6.6.1	Cleaning the Condensation Trap

8.4 Lubrication Table by Cycle

Target group	Lubrication cycle	Additional information	
Maintenance Personnel	Lubrication each 4 000 h	8.7.2	Lubricating the Cylinder Bearings
		8.7.2	Lubricating the Cylinder Bearings

8.5 Inspection Table by Cycle

Target group	Inspection cycle	Additional information	
Maintenance Personnel	Inspection each 48 months	5.2.4.2	Replacing the Battery of the Control System
	Inspection for wear parts	8.8.3	Examining the Cross Apron
		8.9.5.1	Examining the Cylinder Housing
Inspector	Inspection for wear parts	8.8.1	Doing a Check of the Motors
		8.8.2	Examining the Feed Trough
		8.8.4	Examining the Lubricating Blocks of the Card Flats

8.6 Cleaning Work

This section contains the information about the cleaning work at the machine.

8.6.1 Daily Cleaning Work

The operating personnel do the daily cleaning work during the shift operation.

8.6.1.1 Cleaning the Delivery Unit

Prerequisites Make sure that the criteria are obeyed:

✓ Doffer is stopped.
✓ A cleaning brush is to be used.
✓ A roller picker is to be used.

⚠ **CAUTION**

Moving parts!

Hand injuries

▶ Stop the doffer.

1. Open the front cover at the delivery unit 1.

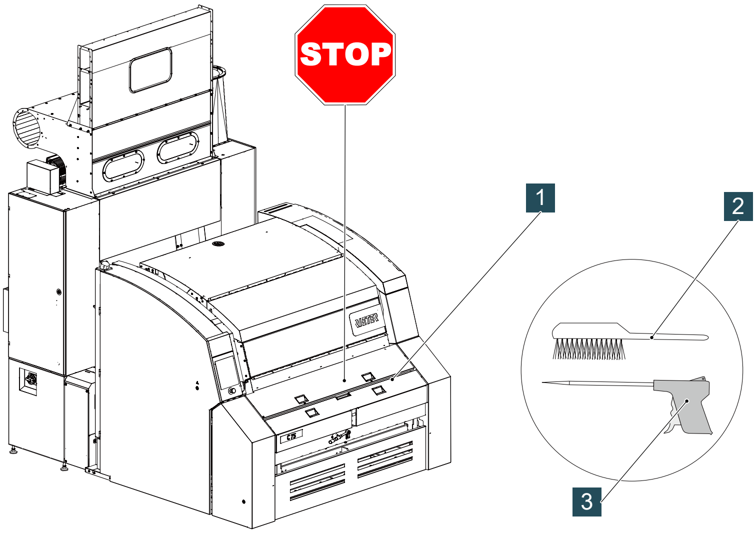


Figure 372: Delivery unit

2. **CAUTION! Moving parts! Hand injuries.** Clean the delivery unit 1 with a cleaning brush 2 or a roller picker 3.
3. Close the front cover at the delivery unit 1.

Result The delivery unit is cleaned.

8.6.1.2 Cleaning the Delivery Rollers

Prerequisites Make sure that the criteria are obeyed:

- ✓ Doffer is stopped.
- ✓ A cleaning cloth is to be used.

⚠ **CAUTION**

Moving parts!

Hand injuries

▶ Stop the doffer.

1. Open the front cover at the delivery unit 1.

   ⇨ The delivery roller is accessible.

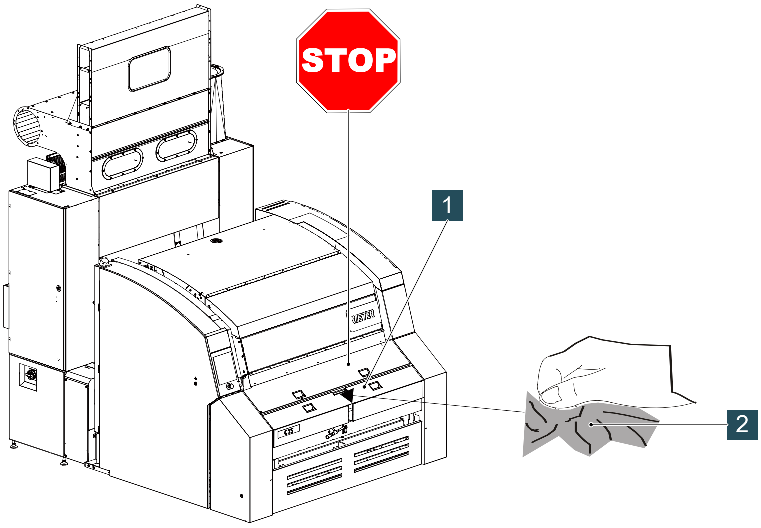


Figure 373: Delivery roller

2. **CAUTION! Moving parts! Hand injuries.** Clean the delivery roller with a cleaning cloth 2.
3. Close the front cover at the delivery unit 1.

Result The delivery roller is cleaned.

8.6.1.3 Cleaning the Stripping Blades

Prerequisites Make sure that the criteria are obeyed:

✓ The doffer is stopped.

✓ A cleaning cloth is to be used.

CAUTION

Moving parts!

Hand injuries

▶ Stop the doffer.

1. **CAUTION! Moving parts! Hand injuries.** Remove the cover 6 and the cross apron 5.

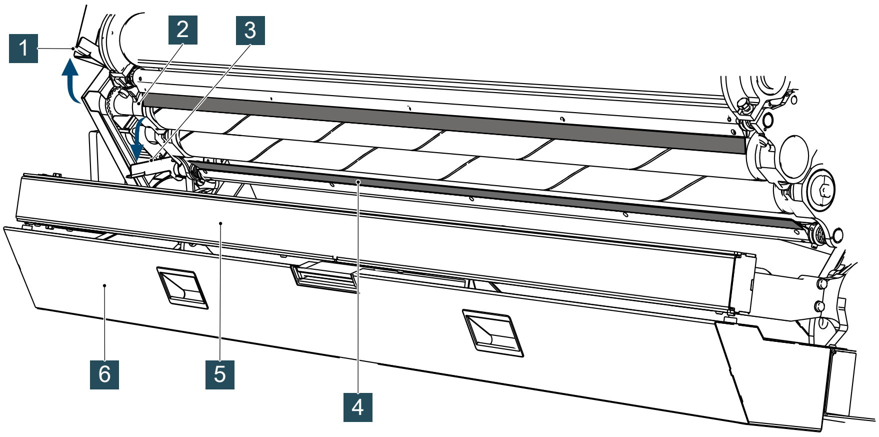


Figure 374: Stripping blades

⇨ The stripping blades 2 and 4 are open to access.

2. Move up the lever 1.
3. Clean the stripping blade 2 with the cleaning cloth.
4. Move the lever 3 down.
5. Clean the stripping blade 4 with the cleaning cloth.

Result The stripping blades are cleaned.

8.6.2 Cleaning Work after Each 165 h

This section contains the information about the cleaning work for the machine components after the specified interval of operating hours.

8.6.2.1 Cleaning the Filter Box

Prerequisites Make sure that the criteria are obeyed:

✓ An industrial vacuum cleaner is to be used.

1. Pull the filter box 1 out of the machine.

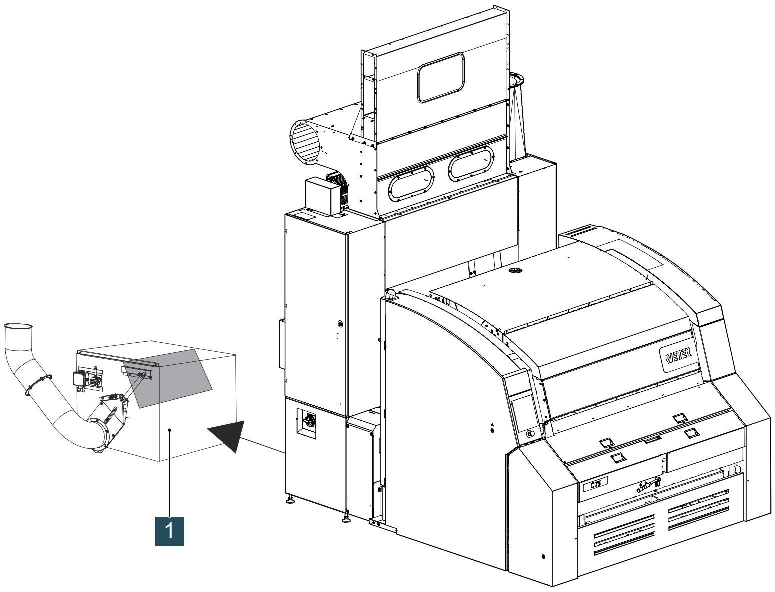


Figure 375: Filter box

2. Clean the filter box 1 with an industrial vacuum cleaner.
3. Remove the collected material that is not necessary in the area of the filter box 1.

Result The filter box is cleaned.

8.6.2.2 Cleaning the Suction Points

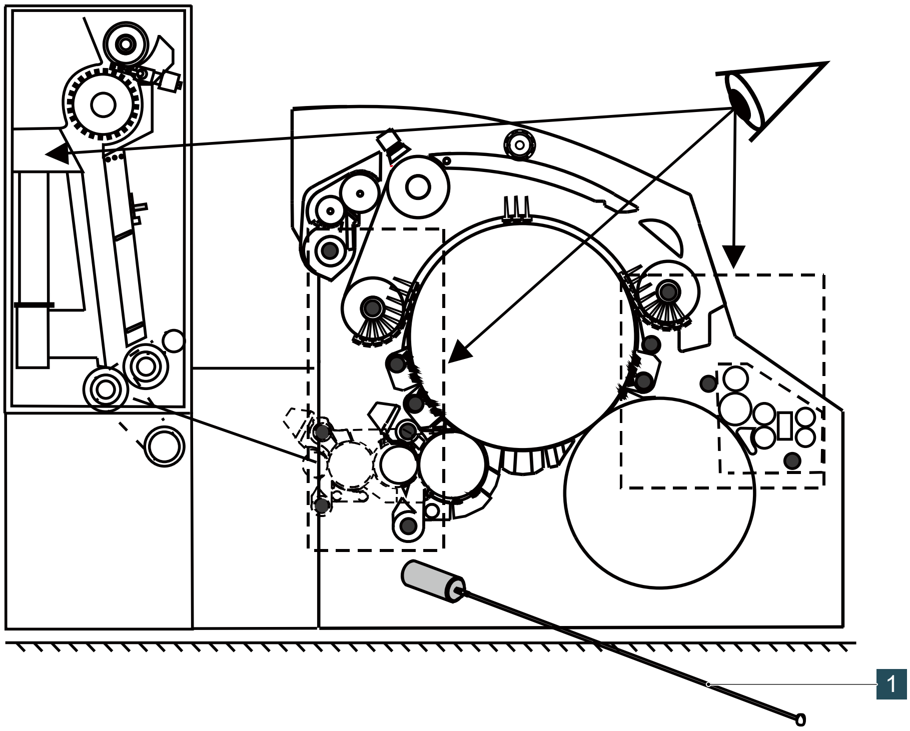


Figure 376: Suction points

Prerequisites Make sure that the criteria are obeyed:

✓ A cleaning brush is to be used.

1. Remove the materials that are collected in the suction tubes.
2. Clean the contamination in the suction tubes with the cleaning brush 1.

Result The suction points are cleaned.

8.6.2.3 Cleaning the Crossbars

Prerequisites Make sure that the criteria are obeyed:

✓ An industrial vacuum cleaner is to be used.

1. Remove the collected material from the crossbars 1 below the deflection areas of the card flats with an industrial vacuum cleaner.

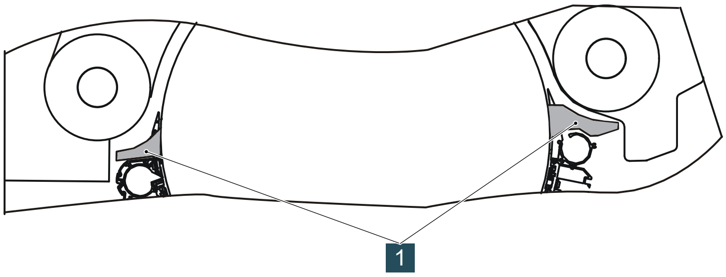


Figure 377: Crossbars

2. To clean the crossbars 1, use an industrial vacuum cleaner.

Result The crossbars are cleaned.

8.6.2.4 Cleaning the Card

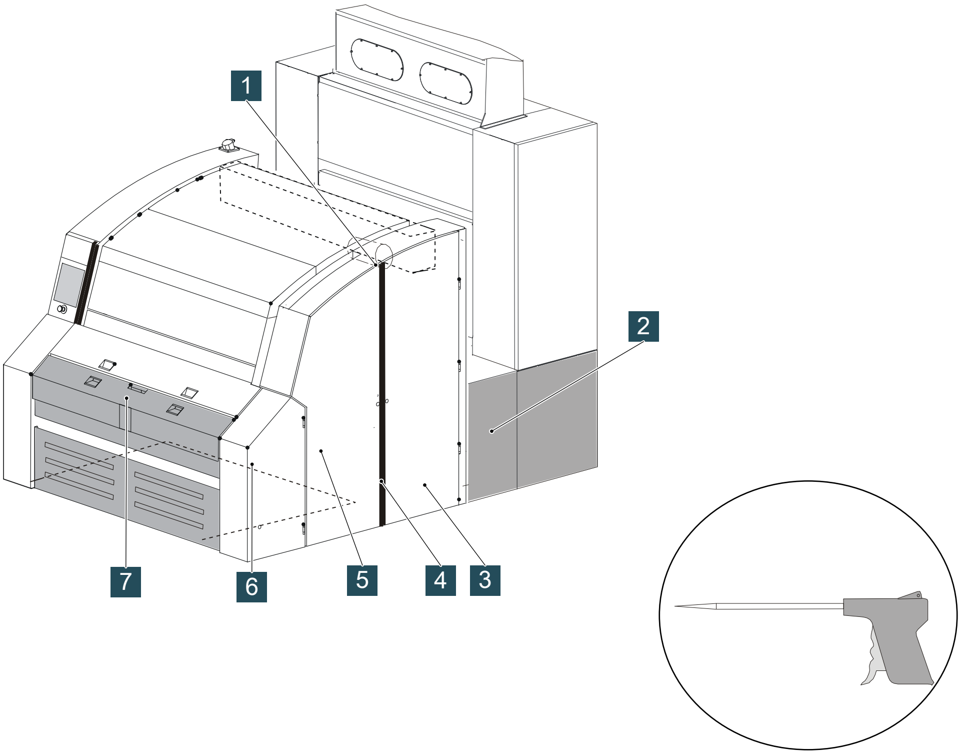


Figure 378: Carding machine

Prerequisites Make sure that the criteria are obeyed:

- ✓ An industrial vacuum cleaner is to be used.
- ✓ A roller picker is to be used.

1. Clean the area around the carding machine.
2. Clean the IGS-classic 4.
3. Clean the IGS-top 1.
4. Clean the licker-in drive 2.
5. Clean the cylinder drive 3.
6. Clean the doffer 5
7. Clean the delivery drive 6.
8. Clean the cross apron 7.
9. Clean the space below the doffer 5.

Result The card is cleaned.

8.6.2.5 Cleaning the Area of the Calender Rollers

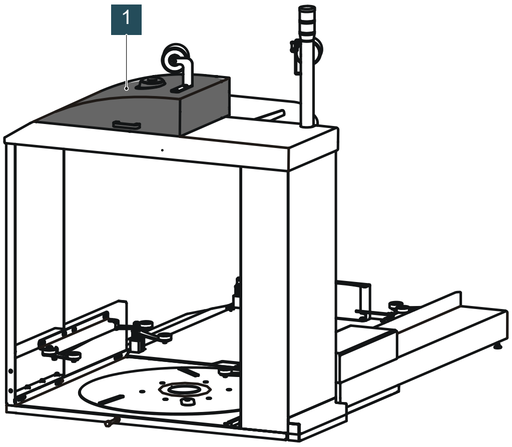


Figure 379: Sliver coiling device CBA

Prerequisites Make sure that the criteria are obeyed:

- ✓ A roller picker is to be used.
- ✓ An industrial vacuum cleaner is to be used.

1. Do not clean the area of the calender rollers 1 with a sharp auxiliary tool.
2. To remove the impurities around the area of the calender rollers 1, use the industrial vacuum cleaner.
3. To remove the material from the clogged area of the calender rollers 1, use the roller picker.

Result The area of the calender rollers is cleaned.

8.6.2.6 Cleaning the Coiler Tube

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- ✓ A cleaning brush is to be used.

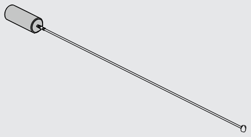
1. Examine if the coiler tube 2 is clogged.
2. To remove the impurities from the coiler tube 2, use the cleaning brush 1.

Result The coiler tube is cleaned.

8.6.3 Cleaning Work after Each 330 h

This section contains the information about the cleaning work for the machine components after the specified interval of operating hours.

8.6.3.1 Cleaning the Top Part of the Air Separator

	Brush	The brush is used to clean the coiler tube.

Prerequisites Make sure that the criteria are obeyed:

✓ A brush is to be used.

1. Stop the material feed of the upstream feed system.
2. Tap the key for emptying the line.
3. Open the window 1.

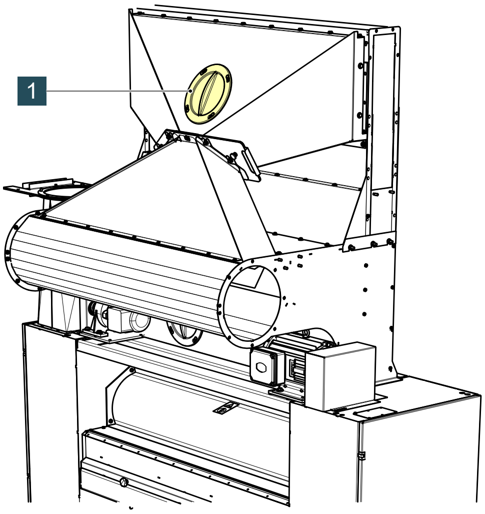


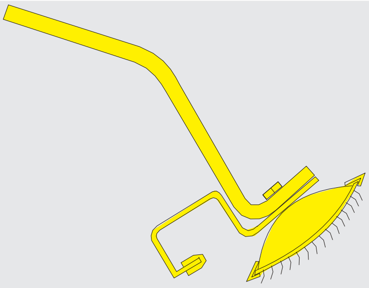
Figure 380: Top of the air separator

4. Clean the internal parts of the air separator with the cleaning brush.

Result The top part of the air separator is cleaned.

8.6.3.2 Cleaning the Card Flat Clothing

Tools

	Hand striper

Prerequisites Make sure that the criteria are obeyed:

✓ A hand stripper is to be used.
✓ An industrial vacuum cleaner is to be used.
✓ A movable platform is to be used.

1. Open the front cover 1.

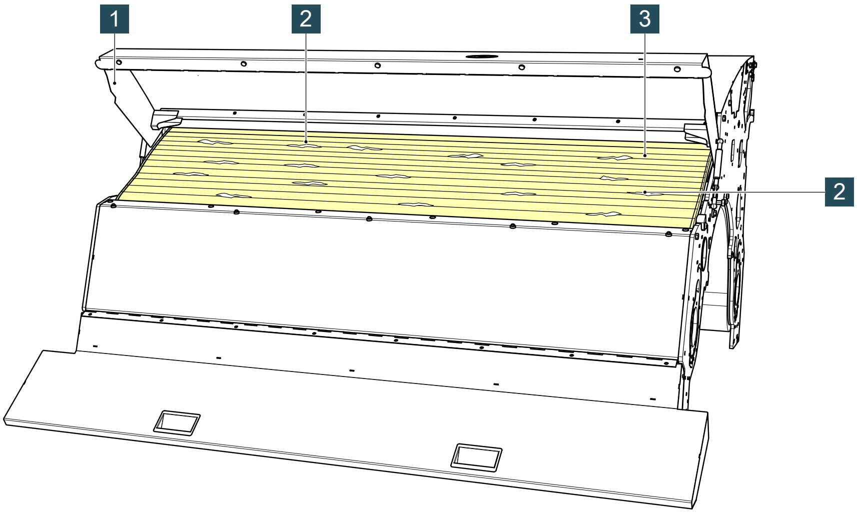


Figure 381: Card flat clothing

2. Clean the card flat clothing 3 with the industrial vacuum cleaner.
3. Remove the caught material between the card flat clothing 3 with the hand striper.

Result The card flat clothing is cleaned.

8.6.3.3 Preparing the Clothing Fillet

Orientation Always clothe the 2 clearer rollers. The winding up of the clothing of the clearer roller PW1 is described below. The winding up of clearer roller PW2 occurs in the same manner.

Prerequisites Make sure that the criteria are obeyed:

- ✓ Needle nose pliers are to be used.
- ✓ Punch pliers are to be used.
- ✓ The cleaning unit is removed.
- ✓ The clearer rollers are removed. See *Replacing the Clearer Rollers ▸ 586*

1. Make sure to pull the needles 4 out of the clothing band 2 until the sufficient area is available for the fastening of the clamp piece 3.

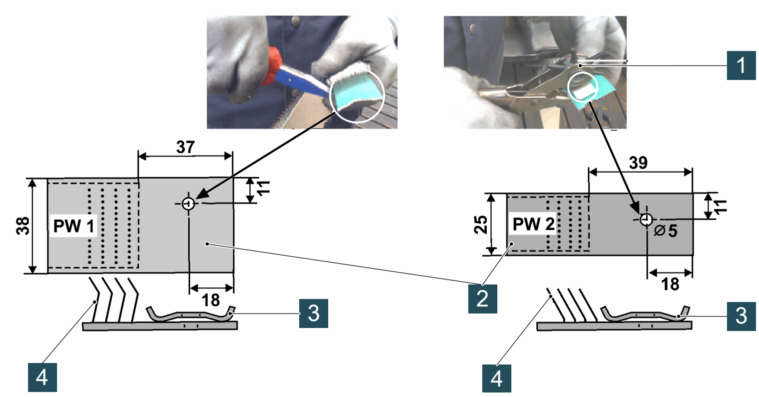
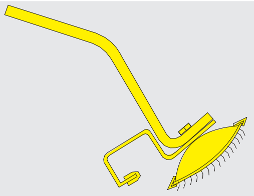


Figure 382: Preparation of the clothing band

2. To pull the needles 4 out of the clothing band 2, use the needle nose pliers.
3. Mark the position for the hole as per the drawing.
4. To make a hole, use the punch pliers 1 or similar tool.

Result The clothing fillet is prepared.

8.6.3.4 Cleaning the Doffer

	Hand striper	The hand striper is used to clean the clothing of machine components such as the doffer clothing and the card flats clothing.

Prerequisites Make sure that the criteria are obeyed:

✓ A hand striper is to be used.

WARNING

Turning doffer!

Hand injuries

▶ Do Not go into the area of the doffer.
▶ Make sure that only approved personnel clean the doffer.

1. Stop the doffer.
2. Remove the suction pipe above the doffer.
3. Remove the cover plate 1.

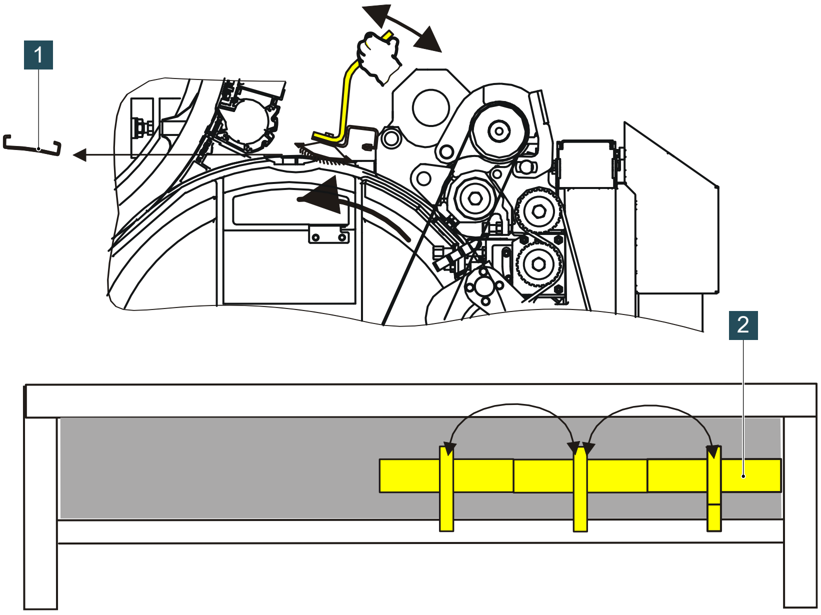


Figure 383: Doffer unit

4. Start the doffer at low speed.
5. **WARNING! Turning doffer! Hand injuries.** Clean the card flat clothing in sections with hand striper 2 from the side of the machine.
6. To clean the doffer, push down the hand striper 2 on the doffer for some seconds.

   ⇨ The cleaning is done in some turns of the doffer.

Result The doffer is cleaned.

8.6.3.5 Cleaning the Deflection Areas of the Card Flats

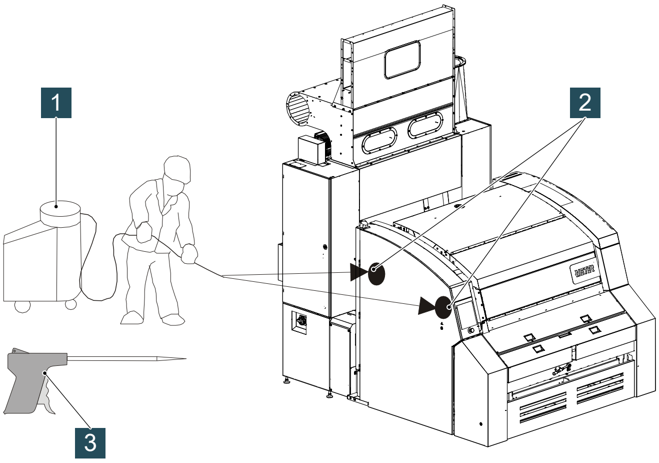


Figure 384: Deflection areas of the card flats

Prerequisites Make sure that the criteria are obeyed:

✓ An industrial vacuum cleaner is to be used.

✓ A roller picker is to be used.

1. Examine the deflection areas 2 of the card flats.
2. To clean the deflection areas 2 of the card flats, use the industrial vacuum cleaner 1.
3. To remove the material from the clogged deflection areas, use the roller picker 3.

Result The deflection areas of the card flats are cleaned.

8.6.3.6 Cleaning the Suction Duct

Prerequisites Make sure that the criteria are obeyed:

✓ A screwdriver is to be used.

1. Pull back the bolt 4.

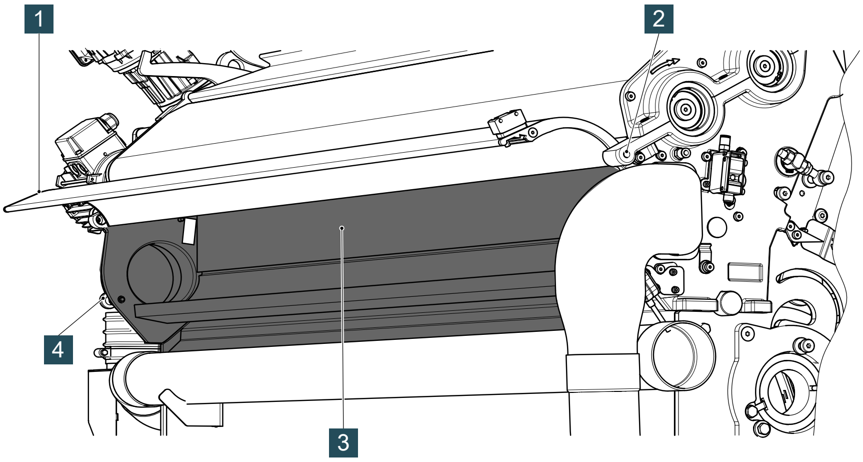
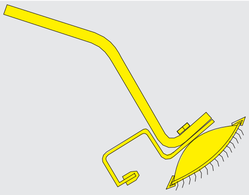


Figure 385: Suction duct

2. Open the cover 1.
3. Move up the cover 1 above the bore 2.
4. Put the screwdriver into the bore 2.
   ⇨ The cover 1 stays open.
5. Clean the suction duct 3.
6. Remove the screwdriver from the bore 2.
7. Close the cover 1.
8. Lock the cover 1 with the bolt 4.

Result The suction duct is cleaned.

8.6.3.7 Cleaning the Clearer Roller PW1

	Hand striper	The hand striper is used to clean the clothing of machine components such as the doffer clothing and the card flats clothing.

Prerequisites Make sure that the criteria are obeyed:

- ✓ A hand stripper is to be used.
- ✓ An industrial vacuum cleaner is to be used.

WARNING

Turning clearer roller!

Risk of injuries because hands become pulled in between the clearer rollers

- ▶ Examine the operating status of the machine.
- ▶ Clean the clearer roller carefully.

1. Open the cover 1.

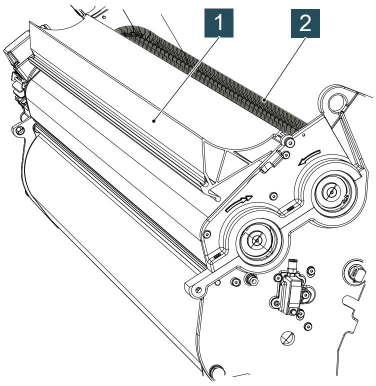


Figure 386: Clearer roller PW1

2. **WARNING! Turning clearer roller! Risk of injuries because hands become pulled in between the clearer rollers.** To clean the clearer roller 2, use the hand stripper and the industrial vacuum cleaner.
3. Set the main switch to the position ON.
4. Enter the password in the level 2.
5. Select the operating mode **Test mode** in the data screen 80.1 **Operating mode switchover**.
6. Select the data screen 83.7 **Test, clearer roller, flats**.
7. Select **Yes** in **Run drive tests**.
8. Push and hold the start button until the clearer roller turns a 1/3 turn.

⇨ The other side of the clearer roller that is not cleaned is open to access.

9. Clean the clearer roller of the opposite side.
10. Do the same procedure again until the full clearer roller is cleaned.
11. Set the main switch to the position OFF.
12. Close the cover 1.

Result The clearer roller PW1 is cleaned.

8.6.4 Cleaning Work after Each 660 h

The cleaning work given below is done after the specified interval of time.

8.6.4.1 Removing the Honeydew

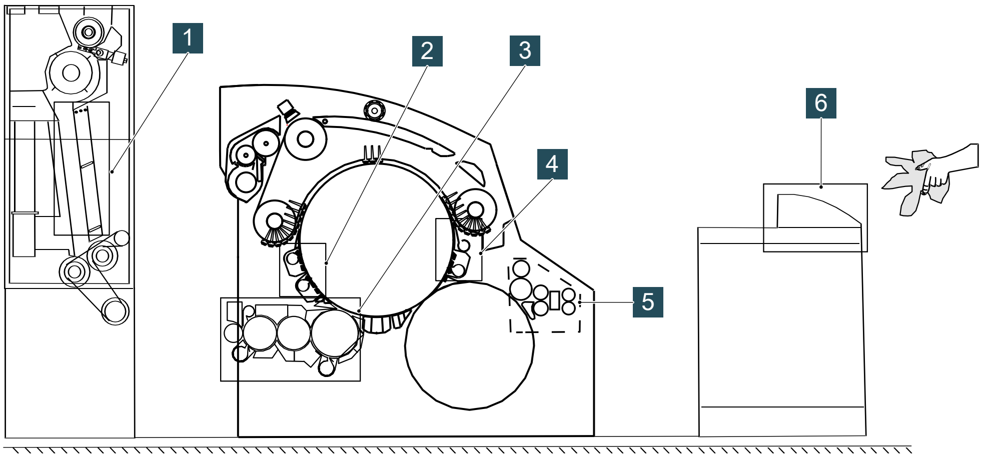


Figure 387: Cleaning points

1	Card chute	2	Pre-carding zone
3	Licker-in unit	4	Post-carding zone
5	Delivery unit	6	Coiler

Prerequisites Make sure that the criteria are obeyed:

✓ A cleaning cloth is to be used.

1. Put the cleaning cloth into warm water.
2. To remove the honeydew from the machine parts at the locations 1, 2, 3, 4, 5, and 6 that touch the cotton, use the moist cleaning cloth.

Result The honeydew is removed.

8.6.5 Cleaning Work after Each 2 000 h

This section contains the information about the cleaning work for the machine components after the specified interval of operating hours.

8.6.5.1 Cleaning the Rubber Seals

Prerequisites Make sure that the criteria are obeyed:

- ✓ A moist cleaning cloth is to be used.
- ✓ Glycerin is to be used.
- ✓ A brush is to be used.

1. Clean the rubber seals with the moist cleaning cloth.
2. Apply glycerin to the rubber seals with the brush.
   ⇨ The applied glycerin increases the elastic property of the rubber seals.

Result The rubber seals are cleaned.

8.6.5.2 Cleaning the Carding Profiles

Prerequisites Make sure that the criteria are obeyed:

- ✓ A knife is to be used.

1. Remove the carding profiles 1. See *Replacing the Carding Profiles for the Machine Version with Cotton* ▸ *566* or *Replacing the Carding Profiles for the Machine Version with Man-Made Fibers* ▸ *567* or *Replacing the Carding Profiles for the Machine Version with Cotton and Man-Made Fibers* ▸ *569*

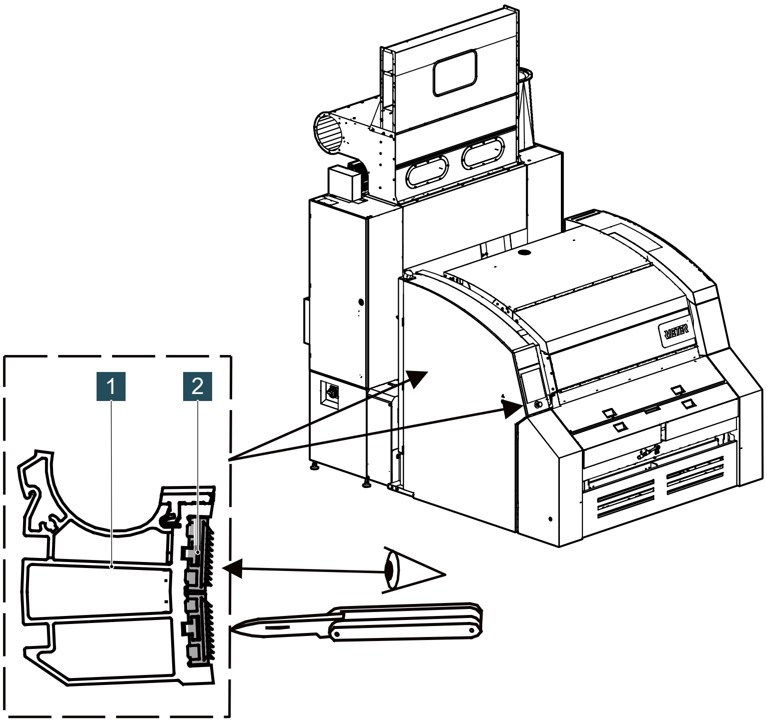


Figure 388: Carding profile

2. Examine the clothing strips 2.
3. Clean the clothing strips 2 with the knife.

4. To prevent to set the carding profiles 1 again, make sure that the carding profiles 1 do not become interchanged.
5. Install the carding profiles 1.
   ⇨ The carding profiles 1 are installed at the location from where the carding profiles 1 were removed.

Result The carding profiles are cleaned.

8.6.5.3 Cleaning the Feed Channel

1. Clean the feed channel 1.
2. Make sure that no fibers are on the surfaces 2 and the transition 3.

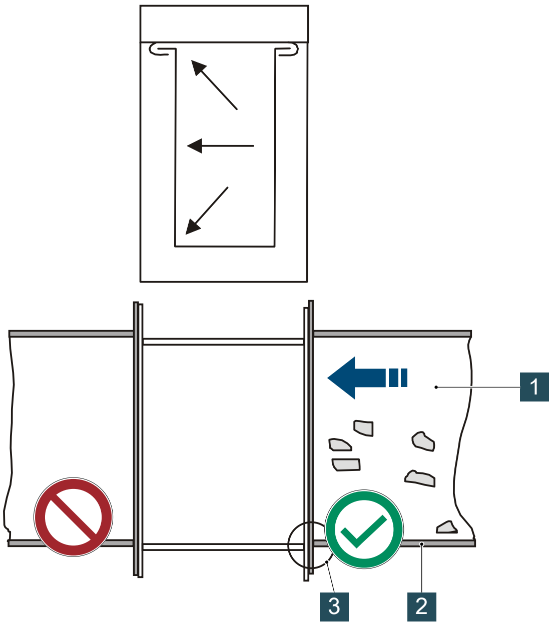


Figure 389: Feed channel

3. Make sure that the transition 3 does not cause a blockage to the flow of the material.

Result The feed channel is cleaned.

8.6.5.4 Cleaning the Cover Trim below the Feed Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The cover trim is removed.
✓ A cleaning cloth is to be used.

1. Put the cleaning cloth in warm water.
2. Clean the cover trim 1 with the moist cleaning cloth.

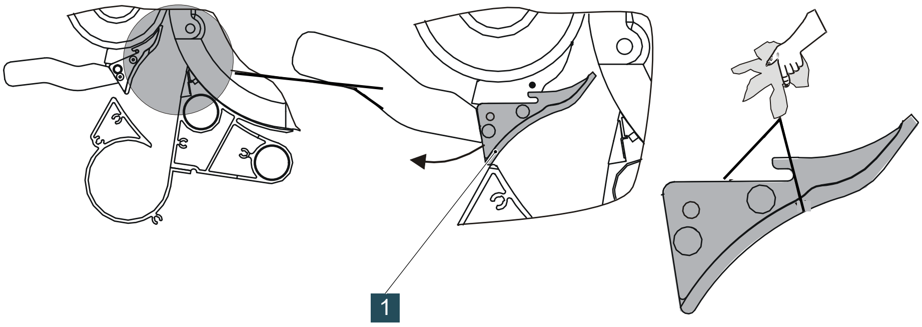


Figure 390: Cover trim below the feed roller

3. If the cover trim stays clean after the specified cleaning interval is expired, extend the cleaning interval.

Result The cover trim is cleaned.

8.6.5.5 Cleaning the Suction Duct below the Disk Rollers

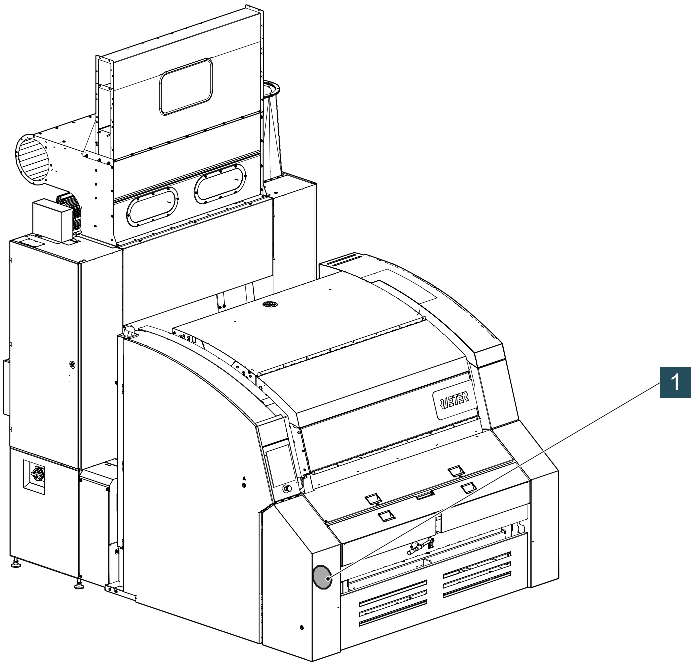


Figure 391: Suction duct below the disk rollers

1. Remove the cover of the suction duct 1 from the left side of the machine.
2. To examine if material is in the suction duct, use a flashlight.
3. If material is in the suction duct, clean the suction duct.

Result The suction duct below the disk rollers is cleaned.

8.6.5.6 Cleaning the Cylinder

Prerequisites Make sure that the criteria are obeyed:

✓ An industrial vacuum cleaner is to be used.

1. Examine the inner side of the cylinder 1.

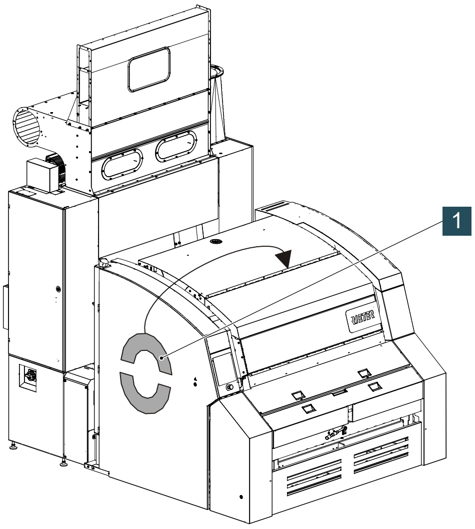


Figure 392: Cylinder area

2. Clean the inner side of the cylinder 1 with the industrial vacuum cleaner.

Result The inner side of the cylinder is cleaned.

8.6.5.7 Cleaning the Clearer Roller

Prerequisites Make sure that the criteria are obeyed:

✓ The machine is not in the operating state.

1. Remove the material that hangs around the clearer roller 1.

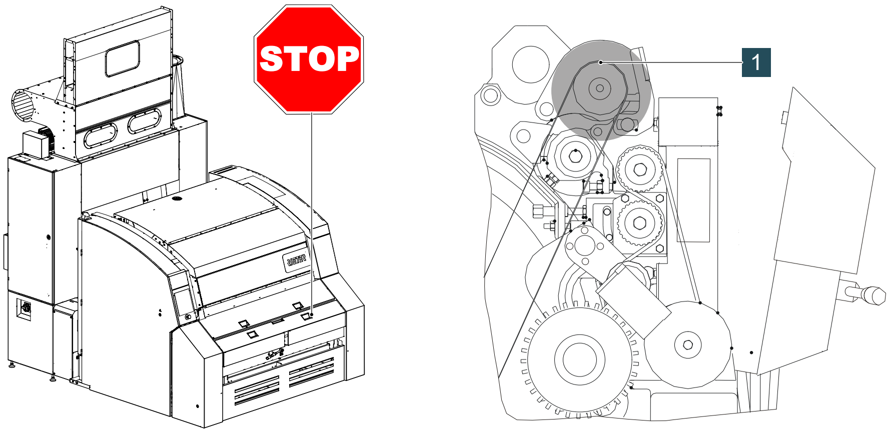


Figure 393: Clearer roller

2. Clean the clearer roller 1 with compressed air.

Result The clearer roller is cleaned.

8.6.5.8 Cleaning the Belts and the Chains

1. Clean all belts 1, 2, 3 and all chains of the machine.

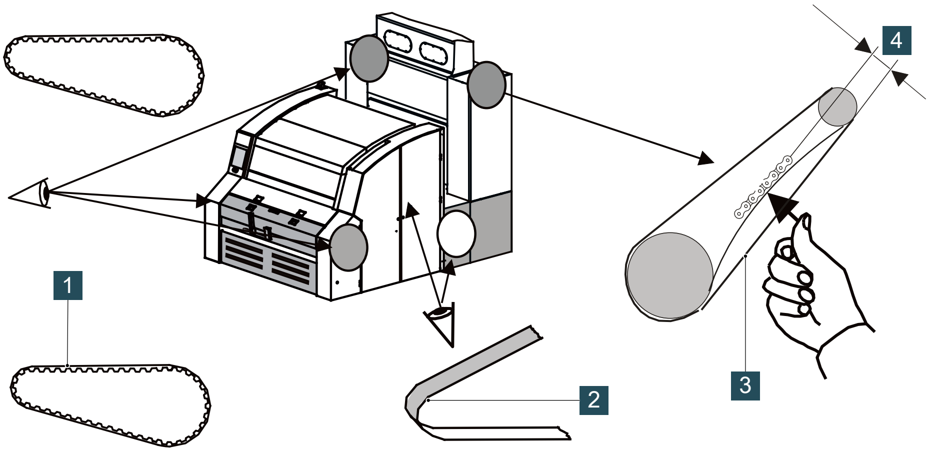


Figure 394: Belts and the chains

2. Make sure that the belt movement 4 is less than 3 mm.
3. Make sure that the belt tension is correct.

Result All belts and all chains are cleaned.

8.6.5.9 Cleaning the Card Flat Heads

Prerequisites Make sure that the criteria are obeyed:

✓ A vacuum cleaner is to be used.

1. Do a check of the card flat heads 1 for contamination.

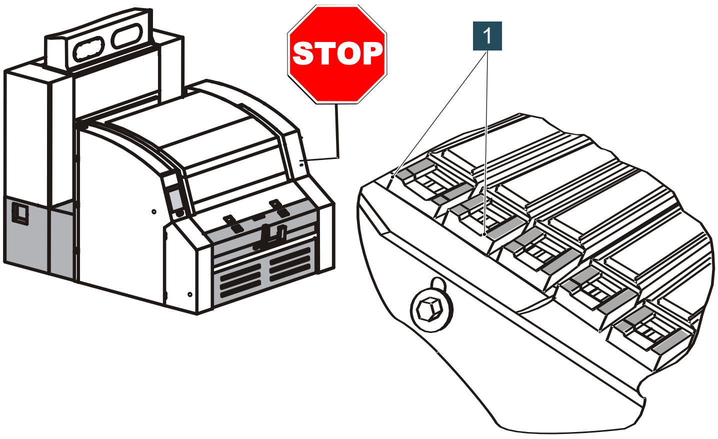


Figure 395: Card flat heads

2. Clean the card flat heads 1 with a vacuum cleaner or a dry cloth.
3. Do not clean the card flat heads 1 with cleaning agent or lubricant.

Result The card flat heads are cleaned.

8.6.5.10 Cleaning the Frequency Converter

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- ✓ Only approved electrician is permitted to clean the frequency converter.
- ✓ An industrial vacuum cleaner is to be used.

DANGER

Parts under power!

Death or dangerous injury because of electric shock

- ▶ Set the main switch to the position OFF and padlock the main switch.
- ▶ Make sure that the only approved electrician does the maintenance work or repair work at the frequency converter.
- ▶ Wait for 10 min after the frequency converter voltage becomes 0 V.
- ▶ Do NOT touch the frequency converter during the discharge time of the capacitor.

1. Open the electric cabinet door of the frequency converter.

DANGER

Parts under power!

Death or dangerous injury because of electric shock

- ▶ Set the main switch to the position OFF and padlock the main switch.
- ▶ Make sure that the only approved electrician does the maintenance work or repair work at the frequency converter.
- ▶ Wait for 10 min after the frequency converter voltage becomes 0 V.
- ▶ Do NOT touch the frequency converter during the discharge time of the capacitor.

2. Clean the frequency converter housing with an industrial vacuum cleaner.
3. After cleaning, attach all the connections correctly.
4. Close the electric cabinet door of the frequency converter.

Result The frequency converter is cleaned.

8.6.5.11 Cleaning the Coiler Drive and the Can Plate Drive

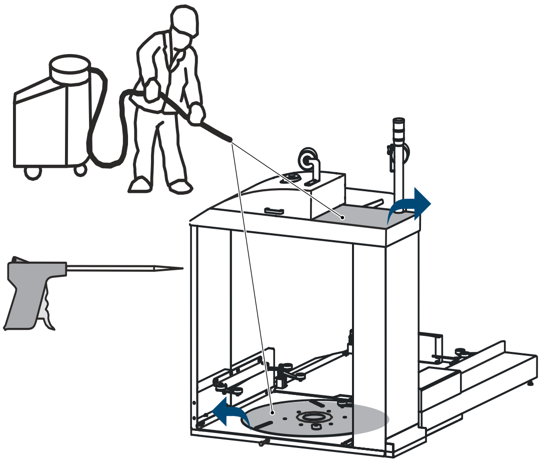


Figure 396: Cleaning the rotary and can plate drives.

Prerequisites Make sure that the criteria are obeyed:

✓ A vacuum cleaner is necessary.

1. Remove the contamination with a vacuum cleaner.
2. Remove jammed material with the roller picker.

Result The rotary plate and the can plate drives are cleaned.

8.6.6 Cleaning Work after Each 8 000 h

This section contains the information about the cleaning work for the machine components after the specified interval of operating hours.

8.6.6.1 Cleaning the Condensation Trap

Orientation This section contains the information about how to clean the condensation trap of the pressure regulator.

Prerequisites Make sure that the criteria are obeyed:

✓ A cleaning cloth is to be used.
✓ A cleaning agent is to be used.
✓ Water is to be used.

⚠ **WARNING**

Explosive release of compressed air!

Eye injury because the compressed air is released explosively

▶ Wear eye protection.
▶ Slowly release the compressed air.

1. Move the slider 1 upward.

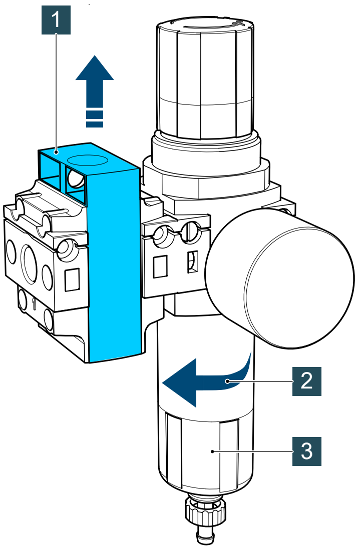


Figure 397: Pressure regulator

⇨ The compressed-air supply is stopped.

2. Turn the condensation trap 3 in the direction of the arrow 2 that is shown in the figure.
3. Clean the condensation trap 3 with the cleaning cloth, the cleaning agent, and water.

Result The condensation trap is cleaned.

8.6.7 Cleaning Work if Necessary

This section contains the information about the cleaning work at the machine if necessary.

8.6.7.1 Cleaning the Card Chute

1. Remove the cover 2.

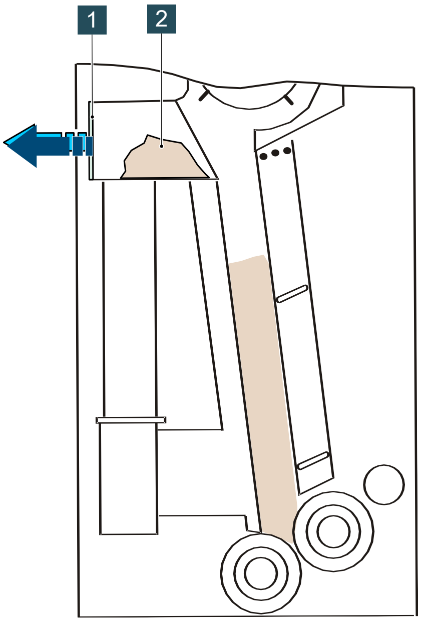


Figure 398: Card chute

2. Clean the card chute 1.

Result The card chute is cleaned.

8.6.7.2 Cleaning the Web Bridge

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.
✓ A moist cleaning cloth is to be used.
✓ A hook is to be used.

1. Open the hood of the delivery unit at the left side of the machine.

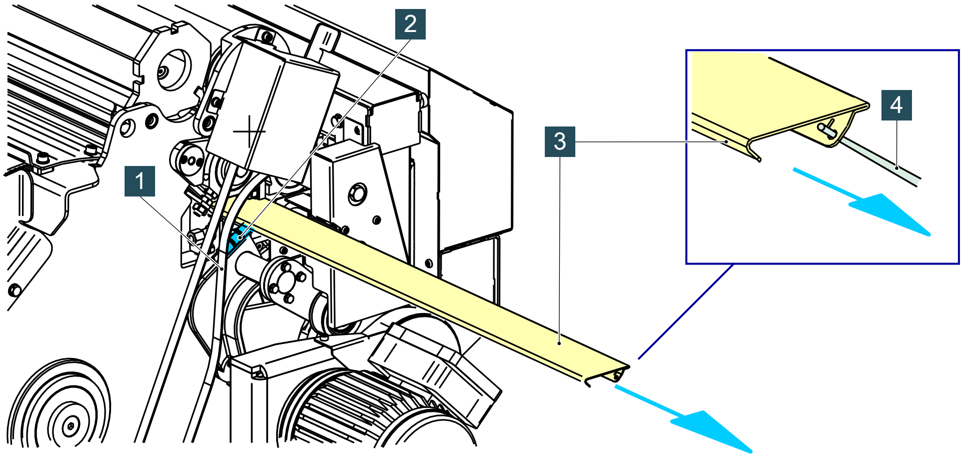


Figure 399: Web bridge

1. Remove the compressed-air hose 2 from the machine.

2. Push the belt 1 to the side.

   ⇨ The access to the web bridge is easier.

1. Put the correct hook 4 into the bore of the web bridge 3.
2. Pull out the web bridge 3 with the hook 4.
3. Clean the web bridge 3 with the moist cleaning cloth.
4. Push in the web bridge 3 to the initial position until the web bridge at the end stop.
5. Attach the compressed-air hose 2 to the machine.
6. Close the hood.

Result The web bridge is cleaned.

8.7 Lubrication Work

This section contains the information about the lubrication works at the machine.

8.7.1 Information on the Grease Quantities

The quantity specifications are given in the unit of stroke in the manual.

Stroke means the number of times the grease is applied with the grease gun at the lubrication point.

Conversion of the Stroke into the Volume Units
1 stroke = 0.3333 cm ³

If a specified lubrication point is to be lubricated with 5 strokes of the grease, then 1.6665 cm ³ quantity of the grease is to be applied at that point.

The grease gun is to be adjusted correctly before the lubrication work.

8.7.2 Lubricating the Cylinder Bearings

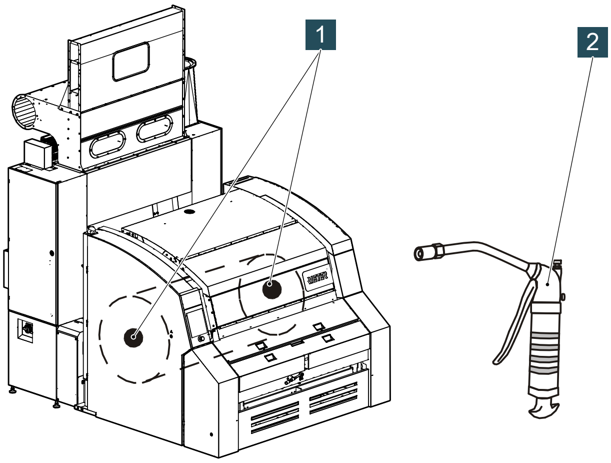


Figure 400: Lubrication to the cylinder bearings

Prerequisites Make sure that the criteria are obeyed:

- ✓ A semi-synthetic grease with a consistency class (NLGI) of 2/1 is to be used.
- ✓ A grease gun is to be used.

1. Open the covers of the cylinder bearings.
2. To apply approximately 3 strokes of the semi-synthetic grease to the cylinder bearings 1 on 2 sides of the machine, use the grease gun 2.
3. Close the covers.

Result The cylinder bearings are lubricated.

8.7.3 Cycloidal Gearbox for the Coiler Drive

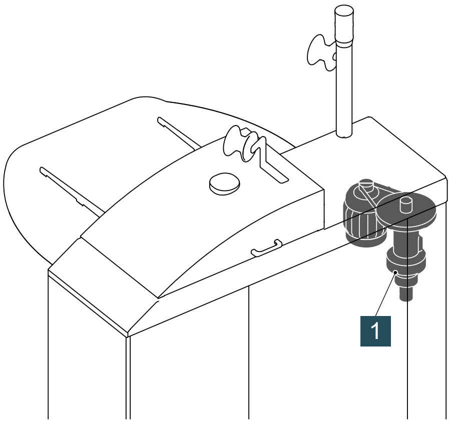


Figure 401: Cyclo gear

Neither open nor lubricate the cycloidial gearbox 1. The cycloidial gearbox is lifetime lubricated according to manufacturer specifications.

8.8 Inspection Work

This section contains the information about the inspection work at the machine.

8.8.1 Doing a Check of the Motors

1. Do a check of all motors and all fans.
2. Do a check of the bearings for bearing noises.

Result The check of the motors is done.

8.8.2 Examining the Feed Trough

Prerequisites Make sure that the criteria are obeyed:

- ✓ The licker-in unit is removed. See *Replacing the Licker-In Unit ▸ 557*

1. Loosen the screws 1.

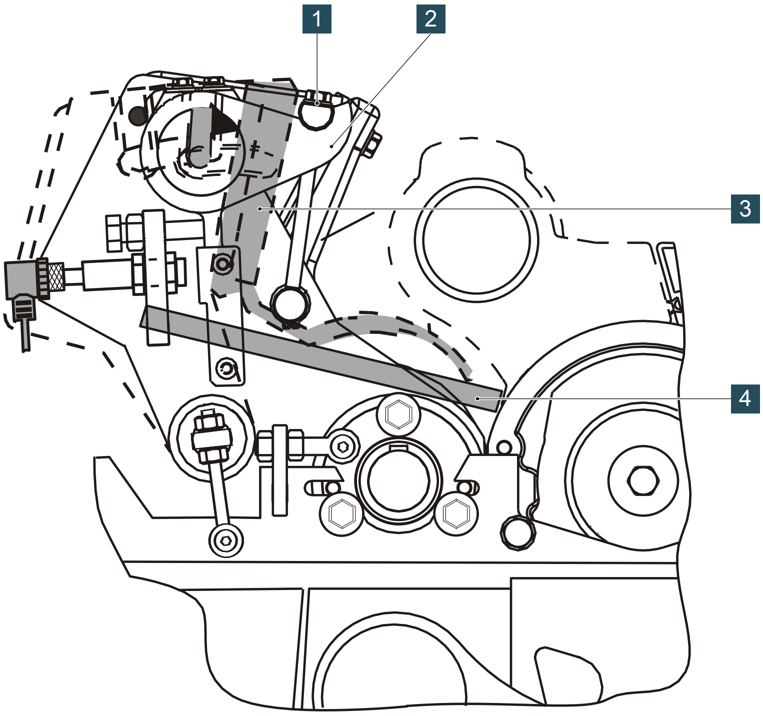


Figure 402: Feed trough

2. Remove the clamping levers 2 and the guide bushings.
3. Open the feed trough 3.
4. Put a wooden wedge 4 between the feed trough and the feed roller.
5. Examine the clamping edge.
6. If the clamping edge is damaged, repair the damage.
7. If the clamping edge is broken, replace the feed trough. See *Replacing the Feed Trough* ▸ *555*

Result The feed trough is examined.

8.8.3 Examining the Cross Apron

1. Examine if the cross apron is worn.
2. If the cross apron is worn, replace the cross apron. See Replacing the Cross Apron

Result The cross apron is examined.

8.8.4 Examining the Lubricating Blocks of the Card Flats

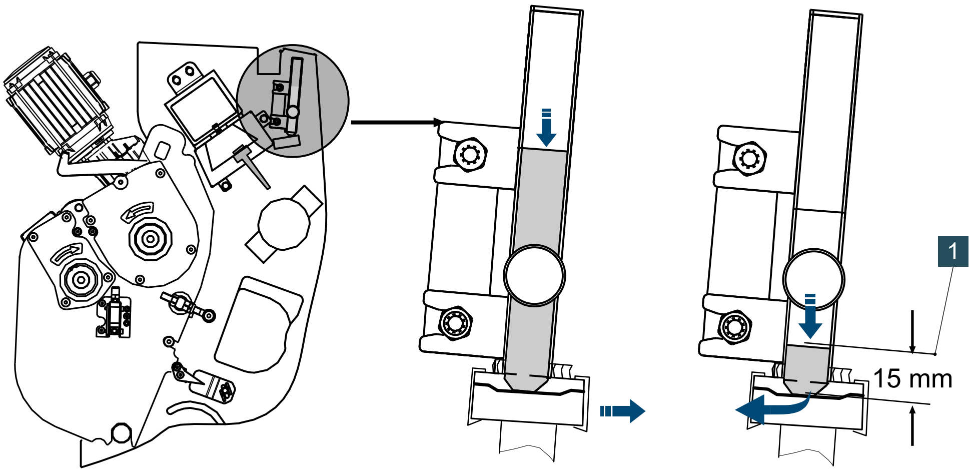


Figure 403: Lubricating blocks

1. Examine the lubricating blocks.
2. If the height 1 of a lubricating block is equal to or less than15 mm, replace the lubricating block. See *Replacing the Lubricating Blocks of the Card Flats ▸ 577*.

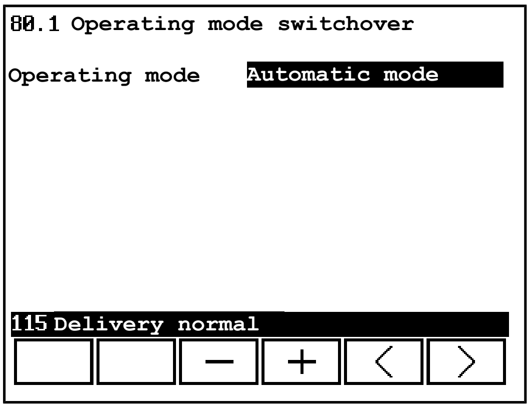
Result The lubricating blocks of the card flats are examined.

8.8.5 Examining the Metal Detector

Orientation The metal detector may not work when the cable is broken or the cotton dust is collected between the carbon brush and shaft end. To make sure that the metal detector works correctly, the operator must examine the metal detector once a month.

Prerequisites Make sure that the criteria are obeyed:
- ✓ 2 person are necessary to do the examination.
- ✓ There is material at the feed roller.

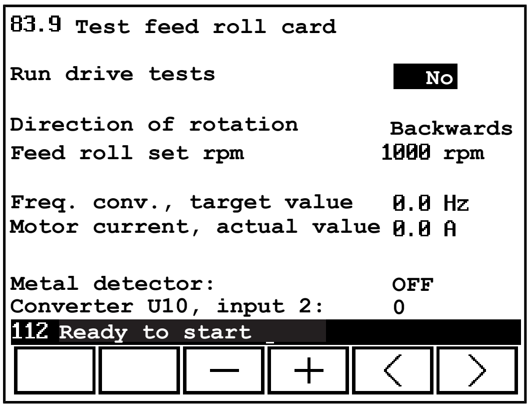
1. Enter password level 2.
2. Select the data screen 80.1 **Operating mode switchover**.



```
80.1 Operating mode switchover

Operating mode      Automatic mode

115 Delivery normal
```

Figure 404: Data screen 80.1

3. Select **Test mode** in the field **Operating mode**.
4. Select the data screen 83.9 **Test feed roll card**.



```
83.9 Test feed roll card

Run drive tests                        No

Direction of rotation           Backwards
Feed roll set rpm              1000 rpm

Freq. conv., target value       0.0 Hz
Motor current, actual value     0.0 A

Metal detector:                 OFF
Converter U10, input 2:         0
112 Ready to start _
```

Figure 405: Data screen 83.9

5. Select **ON** in the field **Metal detector:**

   ⇨ The test for the metal detector is ready to be started.

6. One person jumpers a wire or other conducting tool between the guide plate 1 and the feed roller 2.

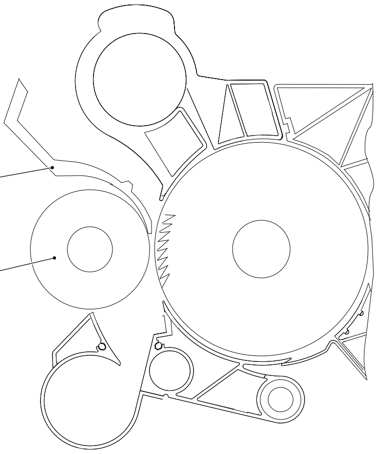


Figure 406: Guide plate and feed roller

⇨ A short circuit is connected manually.

7. Another person go to see the data screen 83.9 **Test feed roll card**.
8. Examine if the value in the filed **Converter U10, input 2:** changes from 0 to 1.

⇨ If the value stays 1 during the short circuit, the metal detector is operated correctly.

Result The metal detector is examined.

8.9 Clothing Maintenance Work

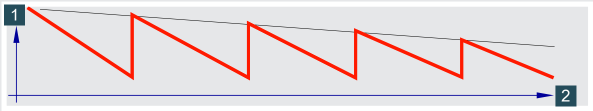
This section contains the information about the maintenance work of cylinder clothing, card flat clothing, and doffer clothing.

8.9.1 Service Life of the Clothings with Cotton

This section contains the information about service life of the clothings with cotton.

The service life and interval of the clothing is given in the below table. The guideline of the card flat clothing manufacturer Graf.

As a rule, newly pulled-on clothings are not ground.

Maintenance Cycle	--	1	2	3	4	5
Yarn quality 1 Time 2						
Combed ring yarn 50 – 180 Ne	0 t	130 t	240 t	340 t	430 t	500 t
Combed ring yarn 20 – 50 Ne	0 t	210 t	390 t	550 t	700 t	800 t
Carded ring yarn	0 t	250 t	460 t	650 t	820 t	950 t

Maintenance Cycle	--	1	2	3	4	5
Carded rotor yarn	0 t	280 t	540 t	760 t	950 t	1 100 t
Card flats	Level after run in ≤ 20 t.	Grind	Grind	Grind	Grind	Examine
Card flats with IGS-top	Level after run in ≤ 20 t.	Automatic sharpening while production – IGS-top At end of service life, examine clothing. Maximum service life can be 5 times of the actual service life.				Examine
Cylinder	Level	Automatic sharpening while production – IGS-classic At end of service life, examine clothing and grinding stone. Maximum service life can be 5 times of the actual service life.				Examine
Doffer	Level	Grind	Grind	Grind	Grind	Replace
Carding element at the feed unit	--	Replace	Replace	Replace	Replace	Replace
Carding element at the delivery unit	--	--	--	--	--	Replace
1 licker-in with a metal card flat clothing	--	--	Replace	--	--	Replace
2 + 3. Licker-in	--	--	--	--	--	Replace
Carding element at the licker-in	--	--	--	--	--	Replace
1 licker-in with the spiked roller	--	--	--	--	--	Replace 2 200 t
Flat cleaning	--	--	Examine	--	--	Examine
Take-off roller	--	--	--	--	--	Replace 2 200 t

8.9.2 Service Life of the Clothings with Man-Made Fibers

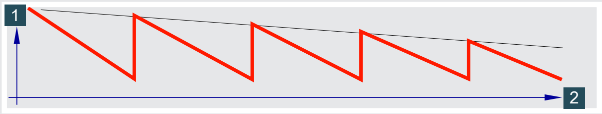
This section contains the information about service life of the card flat clothing with man-made fibers.

The service life of the cylinder clothing cannot be precisely defined. It is highly dependent on the processed material, the quality requirement and the maintenance.

The service life of the doffer clothing can be extended beyond that of the cylinder clothing.

As a rule, the doffer is only ground when it loses the web or if faults are observed at fibre transfer.

If there are fibres with special treatment, the service life of the carding elements is reduced.

Maintenance Cycle		1	2	3	4	5
Yarn quality 1 Time 2						
Ring yarn and rotor yarn	0 t	280 t	540 t	760 t	950 t	1 100 t
Fibers with a special treatment	0 t	130 t	240 t	340 t	430 t	500 t
Card flats	Level after run in ≤ 20 t.	Grind	Grind	Grind	Grind	Replace
Card flats with IGS-top	Level after run in ≤ 20 t.	Automatic sharpening while production – IGS-top At end of service life, examine card flat clothing. Maximum service life can be 5 times of the actual service life.				Replace
Cylinder	Level	Automatic sharpening while production – IGS-classic At the end of service life, examine card flat clothing and grinding stone. Maximum service life can be 5 times of the actual service life.				Replace
Doffer	Level	Grind	Grind	Grind	Grind	Replace
Carding element at the feed unit		Replace	Replace	Replace	Replace	Replace
Carding element at the delivery unit						Replace
1 licker-in with metal clothing			Replace			Replace
2 + 3 licker-in						Replace

Maintenance Cycle		1	2	3	4	5
Carding element at the licker-in						Replace
1 licker-in with a spiked roller						Replace 2 200 t
Flat cleaning						Replace 1 100 t
Take off roller.						Replace 2 200 t

8.9.3 Nep Stairway

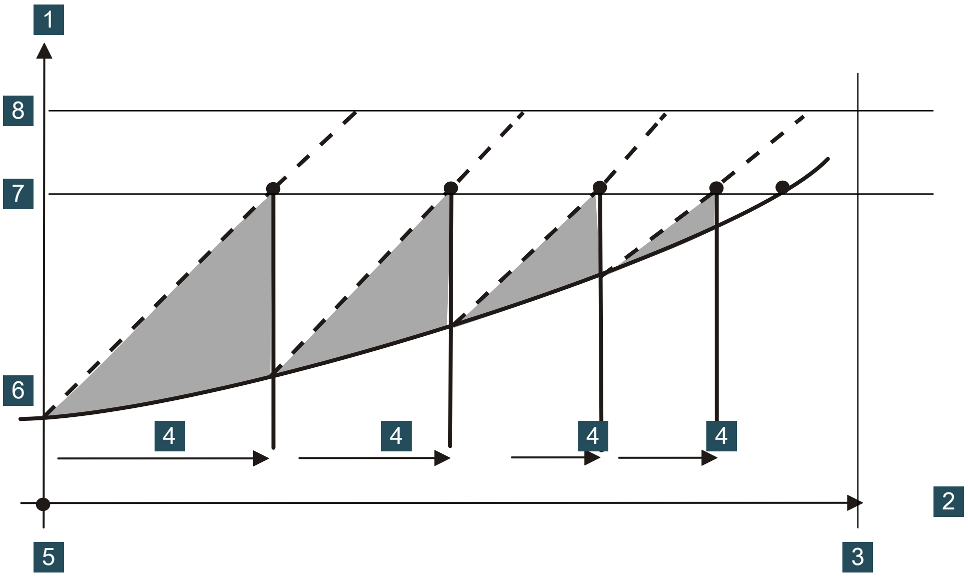


Figure 407: Nep stairway

1	Neps	2	Production
3	End of service life of the card flat clothing.	4	Production quantity
5	Interval determination	6	Minimum number of neps
7	Specified number of neps when grinding is necessary.	8	Maximum permitted number of neps

The number of neps that is the important for grinding must be below the maximum value, that is satisfactory for the spinning mill.

The grinding interval is not to be selected by 1 counting. The correct grinding interval is to be found with many counting.

if there are small neps, the number of neps that is found in the card sliver does not always have an effect on the yarn.

The neps that are in the yarn are necessary to be included in an analysis.

The neps that are in the card sliver are counted with the same method, which is the procedure to compare the many counting values.

Counting with hands or visual measurement on the web are in correct procedures, because results change from person to person, and in relation to the conditions.

8.9.4 Visual Inspection of the Clothing

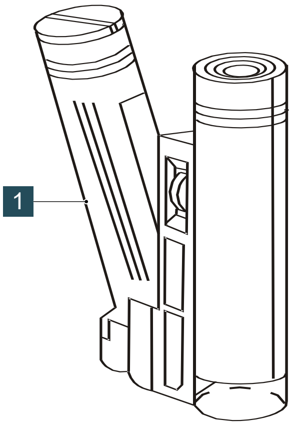


Figure 408: Visual inspection

The grinding of the cylinder clothing and the card flats is necessary, if the number of the neps is on the maximum side of the tolerance range.

The clothing points are examined with the magnifier **1** with the zoom capacity of 30 – 50x.

The Correctly Ground Tooth

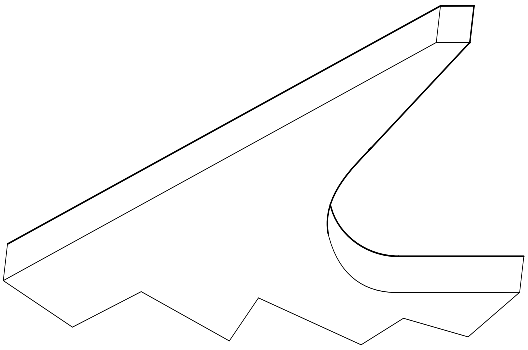


Figure 409: Correctly ground tooth

The diagram shows a correctly ground tooth, with sharp carding edge, good tooth shape and small visible grinding flutes on the tooth surface.

With this tooth, the clothing does the work correctly.

The Worn Carding Edge

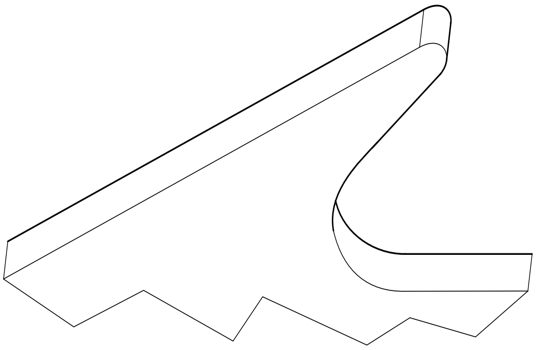


Figure 410: Carding edge wear out.

The carding edge is worn out if a smooth radius is seen on the tooth.

Grinding of cylinder clothing is permitted if IGS-classic is not available.

The Worn Tooth Tip

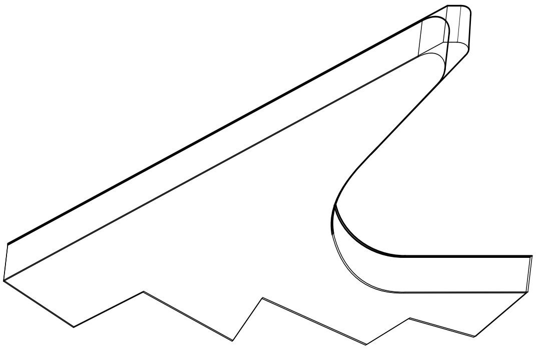


Figure 411: Worn tooth tip

The grinding is done on the radius of the tooth tip. The carding edge is not seen.

Continue grinding the cylinder clothing for a short time.

The Tooth Tip with Brows

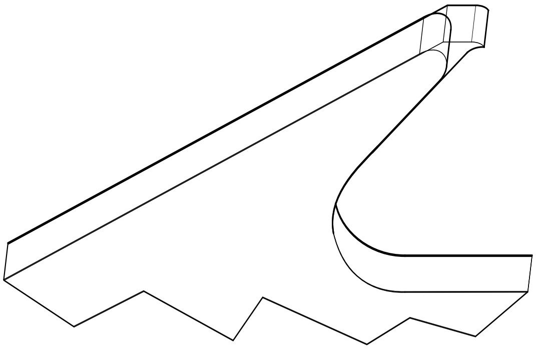


Figure 412: Tooth tip with brow

The cause for the brows is the grinding roller is not correctly pushed against the toothed points.

The Worn Tooth Edge

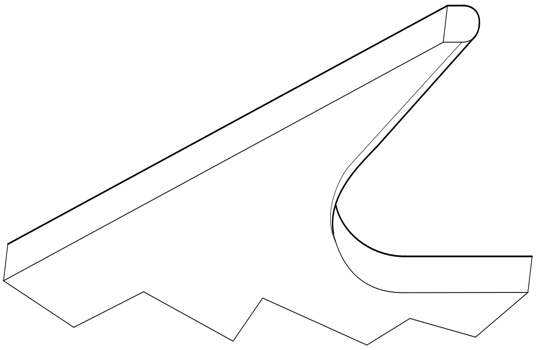


Figure 413: Tooth edge wears out.

The edge on the side is worn out, with formation of a radius.

If the radius forms, then it is necessary to replace the wire.

A Notch on the Body of the Tooth

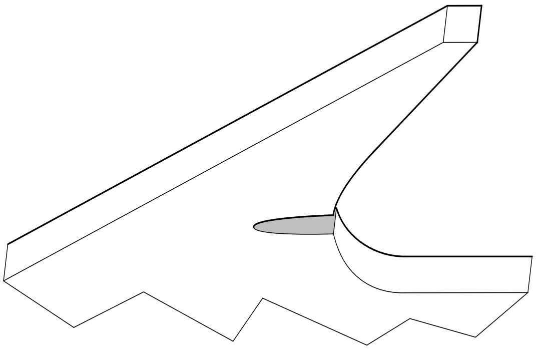


Figure 414: Notch on the tooth body

An impact can cause the notch on the tooth body.

If the notch is formed to the body of the tooth, then it is necessary to replace the wire.

A Notch on the Top of the Tooth

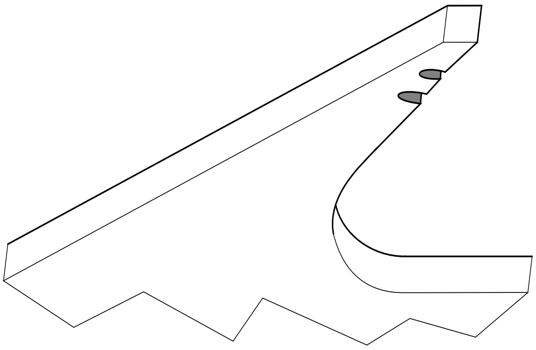


Figure 415: A notch on the top of the tooth

The fibers cause wear on the top of the tooth and notches are formed on the top of the tooth.

If the notch is formed to the body of the tooth, then it is necessary to replace the wire.

8.9.5 Cylinder Clothing

This section contains the information about the maintenance work on the cylinder clothing.

8.9.5.1 Examining the Cylinder Housing

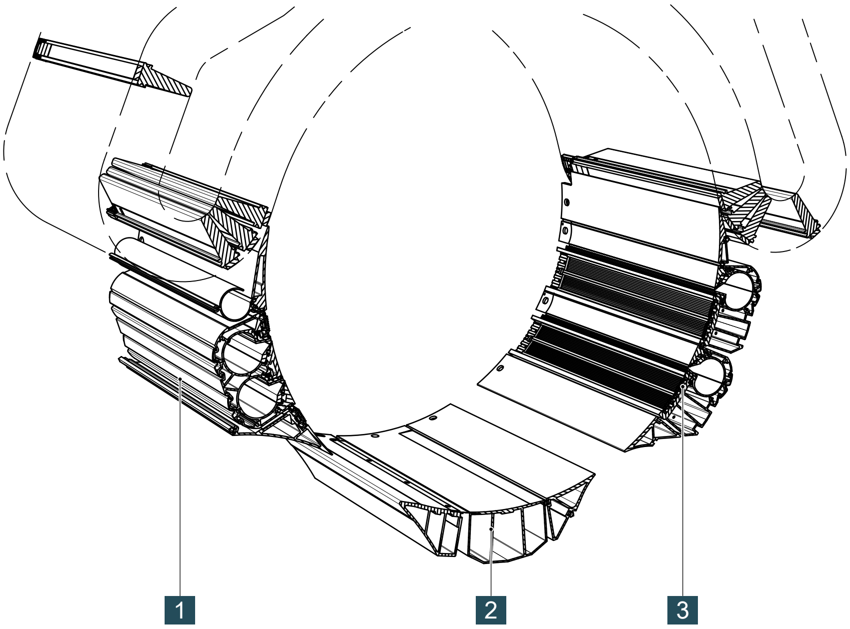


Figure 416: Cylinder housing

1. If the cylinder clothing is replaced each time, examine the housing elements 1, 2, and 3 for wear.

Result The cylinder housing is examined.

8.9.5.2 Devices for the Cylinder Clothing Sharpening

For sharpening of the cylinder clothing the integrated grinding device IGS-classic is recommended otherwise Rieter recommends the cylinder grinding device TSG from Graf.

8.9.5.3 Preparing the Cylinder for the Grinding

⚠ WARNING

Moving cylinder!

Injuries to the hands because of the moving cylinder

- ▶ Stop the cylinder.
- ▶ Do NOT touch the cylinder before the cylinder is stopped.

1. Remove the card flat unit 1. See Removing the Card Flat Unit

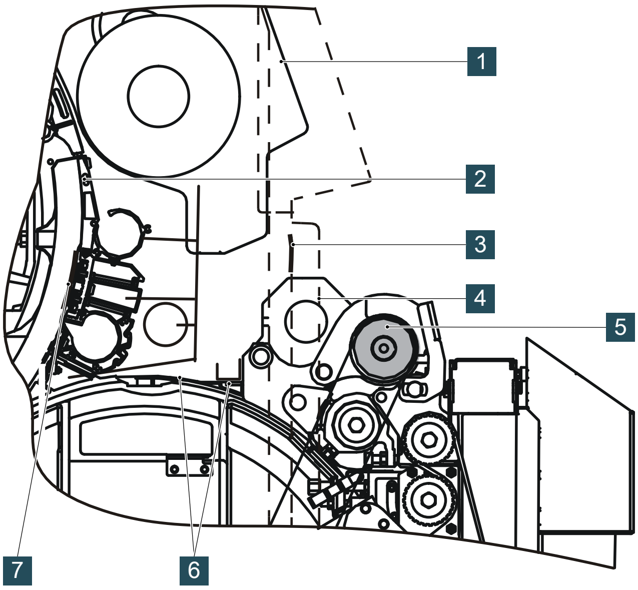


Figure 417: Cylinder area

2. Remove all parts 2 in the area of the post-carding zone.
3. Remove the doffer cover and the guide rail 6.
4. Remove the spacer plate 7.
5. Remove the clearer roller 5.
6. Remove the suction channel 4.
7. Remove the cover 3 on the door frame at the right side of machine.
8. Remove the connections of the suction unit at the right side of the machine.

9. **WARNING! Moving cylinder! Injuries to the hands because of the moving cylinder.** Turn the cylinder backward by hand.

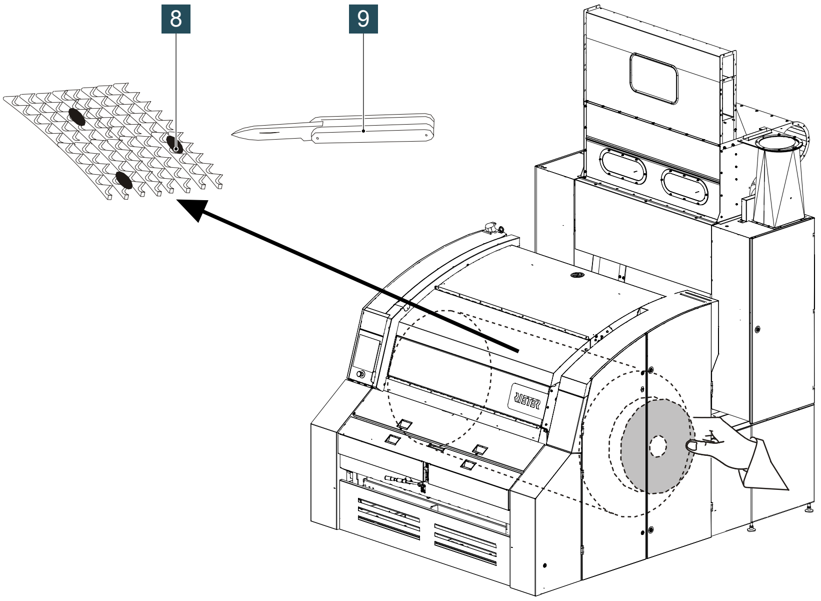
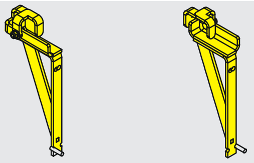
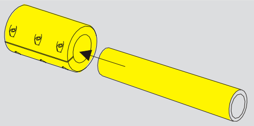


Figure 418: Cylinder clothing for cleaning

10. Remove the coarse wooden or polymer part 8 from the wire with a small blade 9.
11. Make sure that the crane and all other supplies necessary for grinding are available.
12. Attach the belt tensioner of the cylinder belt with a screw.

Result The cylinder is prepared for the grinding.

8.9.5.4 Installing the Auxiliary Tools to Change the Clothing

	Support for the doffer unit	The support for the doffer is used to hold the doffer unit in the installation work and the removal work.
	Clamp hub and extension tube	The clamp hub and extension tube are used to put on new clothing for the doffer and the cylinder.

Prerequisites Make sure that the criteria are obeyed:
- ✓ The clamp hub is to be used.
- ✓ An extension tube is to be used.
- ✓ The support for the doffer unit is to be used.

1. To attach the doffer clothing, push the doffer unit on the supports 3.

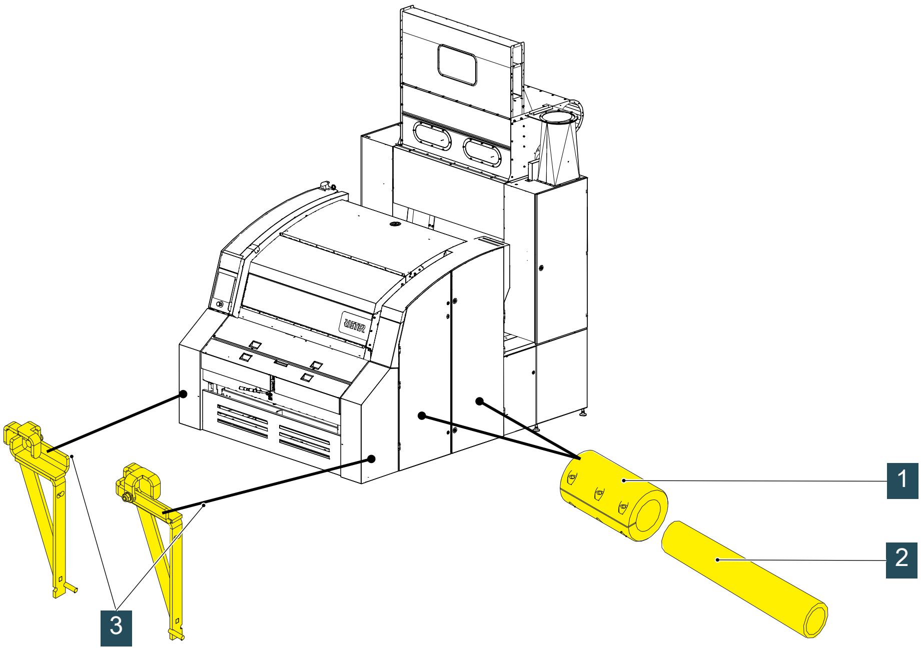


Figure 419: Installation of the auxiliary material for the clothing change

2. To pull the new clothing, install the clamp hub 1.
3. Install the extension pipe 2.

Result The auxiliary tools to change the clothing are installed.

8.9.5.5 Replacing the Cylinder Clothing

Orientation This section contains the information about how to replace the cylinder clothing.

Removing the Cylinder Clothing

1. Select the operating mode **Service mode**in the data screen 80.1 **Operating mode switchover**.
   ⇨ The grinding and pulling on of the clothing can be done in menu 81.
2. Remove the old cylinder clothing.
   ⇨ The cylinder clothing is removed.

Installing the Cylinder Clothing

1. Install the new cylinder clothing.
2. Replace the grinding stone from IGS-classic after each replacement of the cylinder clothing. See *Replacing the Grinding Stone ▸ 518*
3. Enter the password. See *Entering the Password ▸ 70*
4. Select the data screen 70.1 **Maintenance clothings machine I**.

5. Set the counter as 0 t in field **Cylinder reclothing**.
   - ⇨ The counter is set.
   - ⇨ The IGS calculates the grinding budget.
   - ⇨ The cylinder clothing is installed.

Result The cylinder clothing is replaced.

8.9.5.6 Setting the Counter after the Re-clothing

1. Enter the password of the authorization level 2.
2. Select the data screen 70.1 **Maintenance clothings machine I**.
3. Enter the value 0 t in the field **Cylinder reclothing**.
   - ⇨ The IGS calculates the grinding.

Result The counter is set after the re-clothing.

8.9.5.7 Examining the Pin on the Cylinder Edge

1. To examine the installed pins 2, refer to the figure that follows.

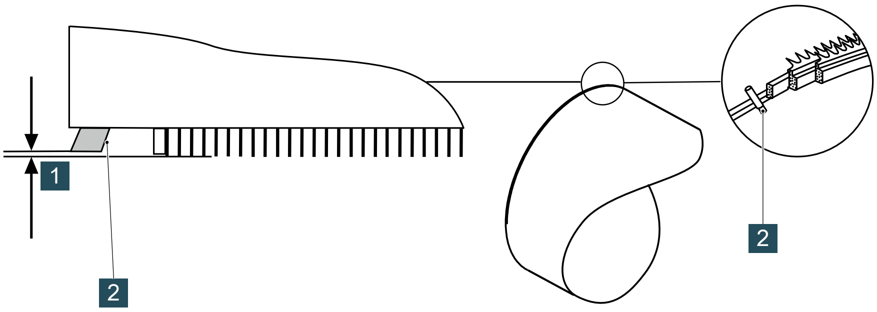


Figure 420: Driving pin on the cylinder edge

2. Make sure that the distance 1 is in the range of 0.3 – 0.5 mm.
3. If the pin 2 is too long or too short, process the driving pin 2.

Result The pin on the cylinder edge is examined.

8.9.6 Doffer Clothing

This section contains the information about the maintenance work on the doffer clothing.

To sharpen the doffer clothing Rieter recommends the ‘ASG’ doffer grinding device of Graf.

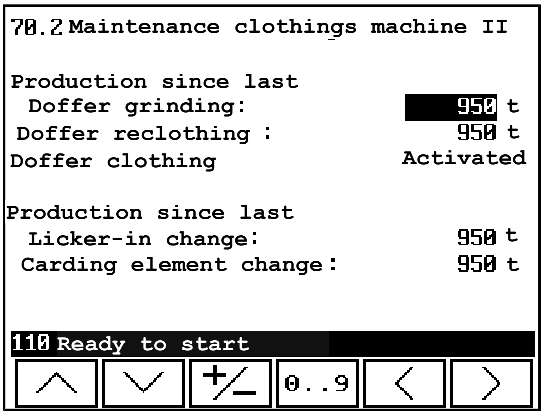
8.9.6.1 Preparing the Doffer for the Grinding

Prepare the machine in the same manner as described for grinding the cylinder clothing. See *Preparing the Cylinder for the Grinding* ▸ *494*

8.9.6.2 Doing the Activation of the Doffer Clothing

Orientation This section contains the information about how to activate the doffer clothing in the data screen.

1. Replace the doffer clothing.
2. Select the data screen 70.2 **Maintenance clothings machine II**.



```
70.2 Maintenance clothings machine II

Production since last
 Doffer grinding:                950 t
 Doffer reclothing :             950 t
Doffer clothing              Activated

Production since last
 Licker-in change:               950 t
 Carding element change:         950 t


110 Ready to start
```

Figure 421: Data screen 70.2 Maintenance clothing machine II

3. Set the counter to 0 t in the field **Doffer reclothing**.

   ⇨ The status in the field **Doffer clothing** change to **Activated**.

4. Set the value **Not activated** to the value **Activated** in the field **Doffer clothing**.

Result The doffer clothing is activated in the data screen.

8.9.6.3 Setting the Counter after the Grinding

1. Enter the password.
2. Select the data screen 70.2 **Maintenance clothings machine II**.
3. Set the counter as 0 t in **Doffer grinding**.
4. Select the activation status as **Activated** in the field **Doffer clothing**.

Result The counter is set after the grinding.

8.9.6.4 Adapting the Position of the Bottom Delivery Roller to the Clothing Height

Orientation The height of the doffer clothing and the take-off roller is changed depends-on the manufacturer and the type of clothing. This effects the position of the adjusted top delivery roller. The position of the top delivery roller relative to the bottom delivery roller is same in a specified range. This is done by adjust the position of the support shafts of the bottom delivery roller.

Calculating the Position of the Support Shafts	
The clothing height: Doffer 5.0 mm/ take-off roller 3.5 mm.	The shaft is adjusted to the position 6.
The clothing height: Doffer 4.0 mm/ take-off roller 4.0 mm.	The shaft is adjusted to the position 6.
The clothing height: Doffer 4.0 mm/ take-off roller 3.5 mm.	The shaft is adjusted to the position 7.
The clothing height: Doffer 4.6 mm/ take-off roller 3.5 mm.	The shaft is adjusted to the position 8.
The clothing height: Doffer 4.6 mm/ take-off roller 4.0 mm.	The shaft is adjusted to the position 9.

1. Find the position of the bottom delivery roller 4 because of the clothing.
2. Find the shaft position related to the doffer height or the height of the take-off roller clothing as given in the above table.
3. Remove the screws 5 at 2 sides.

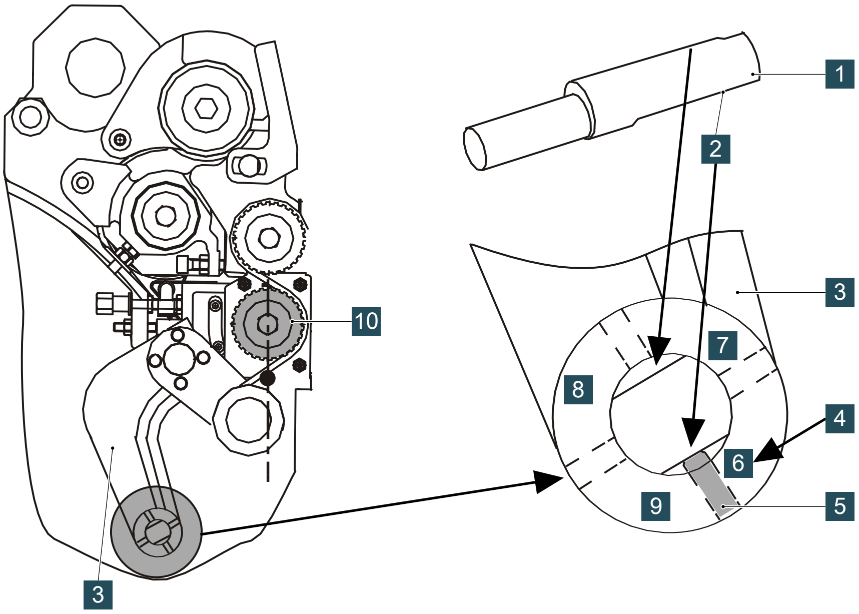


Figure 422: Adjustment of the support shafts

4. Turn the faces 2 of the shafts 1 to the necessary number 4 with the open-end wrench on the support 3.
5. Make sure that faces 2 of the shaft 1 are in the same position on the 2 sides.
6. Put the screws 5 in the applicable tapped bores.
7. Align the faces 2 accurately at a right angle to the screws 5.
8. Tighten the screws 5.
9. Adjust the lower delivery roller 10.
10. Adjust the rollers of the doffer device. See *Adjusting the Rollers of the Doffing Device ▸ 282*

Result The position of the bottom delivery roller to the clothing height is adapted.

8.9.6.5 Clothing of the Take-Off Roller

The take-off roller is to be replaced with clothing from Graf with 'Needle Finish'. The new clothing is not to be brushed with a steel brush.

The clothing without 'Needle Finish' causes the problem that the take-off roller does not give out (wind) the web.

8.9.7 Card Flat Clothing

Grinding

Card flat clothing must be ground as small as possible, but make sure that approximately 80 % of the needles are ground.

To sharpen the card flat clothing manually, Rieter recommends the 'DSW' flat grinding roller from Graf.

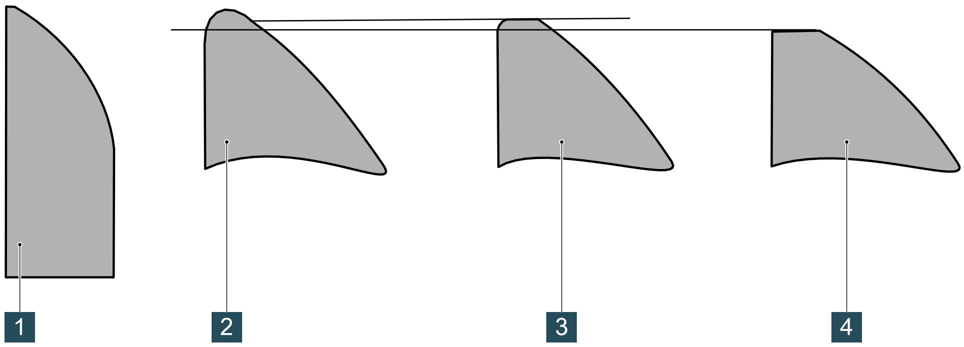


Figure 423: Grind needles

Call out.	Needle identification	Relation
1	New needle	The needle is sharp.

Call out.	Needle identification	Relation
2	Worn needle	The needle does not work correctly.
3	Insufficient number of ground needles	The needle is not sharp.
4	Correctly ground needle.	The needle is sharp again.

The worn needles of the card flat clothing are sharpened again by the grinding procedure. The length of time before this becomes necessary is related to the material, production rate, and quality requirements.

After the card flats grinding or levelling the needles are examined with the magnifying glass. A decision is made if the flats are necessary to be ground again.

Level (Equalize)

Through the leveling, only the projected points of card flat clothing are decreased. This leveling procedure is used to make the height of the card flat clothing equal.

The card flats are leveled on the card. See *Doing the Leveling of the Card Flats at the Machine ▸ 506*

A new clothed card flat is leveled before commissioning and approximate 15 t of production.

Compensation Device

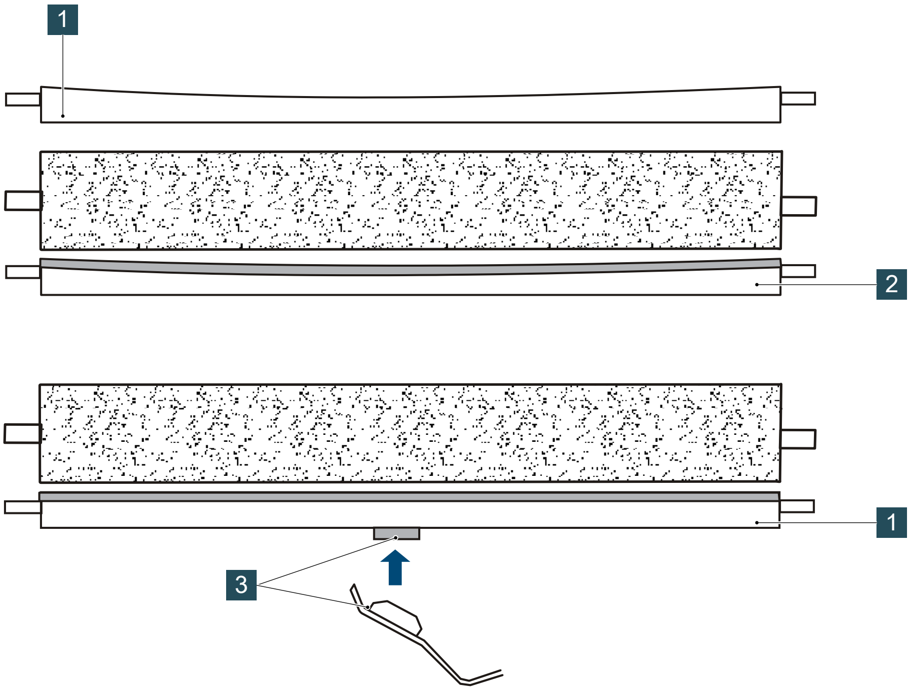


Figure 424: Hollow shape of the card flat rods

The card flat rods 1 without the card flat clothing 2 is made small hollow in the factory. Through the compensating device 3 the hollow made bodies 1 of the card flats are pointed straight.

After grinding without compensation device, the card flats are back to the initial position. The card flats are small hollow again.

8.9.7.1 Preparing the Machine for the Card Flat Grinding

1. Stop the doffers. See *Stopping the Doffer ▶ 357*
2. Clean the machine.
3. Move the grinding roller in the transport box to the card.
   ⇨ The grinding roller is air conditioned.
4. Make sure that the crane and all other necessary supplies are prepared before the grinding operation.
5. Turn the key switch 1 to the position II as shown in the figure.

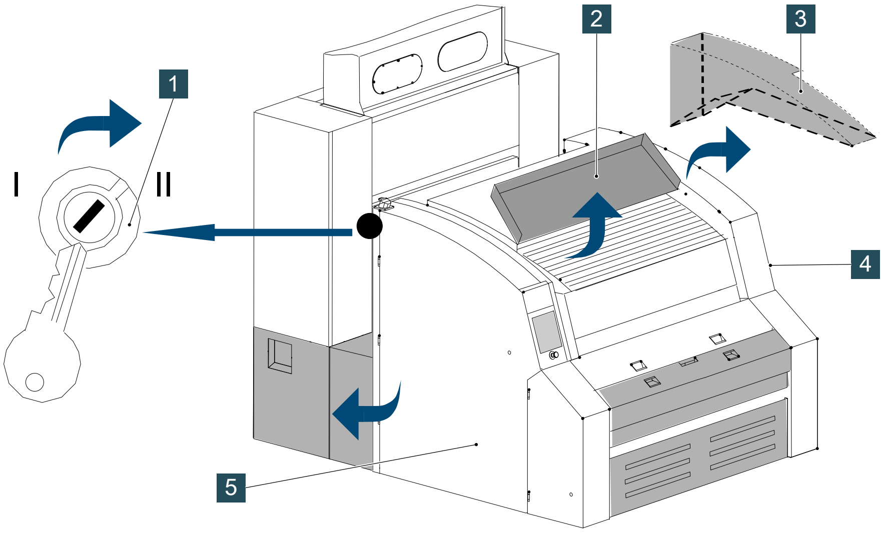


Figure 425: Preparation of the machine for the card flats grinding

6. Remove the cover 3.
7. Disconnect the gas pressure springs of the cover 2.
8. Move the cover 2 rearward.
9. Open the door 4 at the right side of the machine.
   ⇨ The safety limit switch of the door is off.
10. If the IGS top is available, disconnect and lock the related electrical connections.
11. Move the control cabinet 5 out as far as possible.

Result The machine is prepared for the card flat grinding.

8.9.7.2 Starting the Card Flats for the Grinding

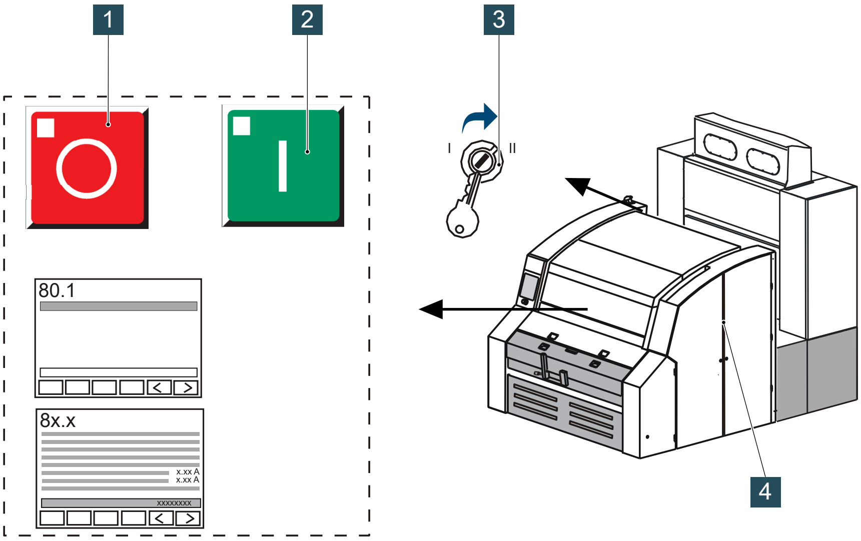


Figure 426: Preparation of the card flats for grinding

1. Start the card flats drive for grinding. See *Preparing the Machine for the Card Flat Grinding ▸ 502*
2. Select the data screen 80.1 **Operating mode switchover** .
3. Select the operating mode **Service mode**.
4. Make sure that the grinding and pulling of the clothing must be done in menu 81.
5. Select the data screen 81.3 **Servicing, flats, clothing**
6. Enter the action **Flats grinding** in the field **Carry out servicing**.
7. Turn the switch button 3 to the position 2.
   - ⇨ The door lock mechanism 4 unlocks the door.
8. Tap the start key 2.
   - ⇨ The drive of the card flats starts.
9. Tap the stop key 1.
   - ⇨ The drive of the card flats stops.

Setting the Lowest Speed for Grinding

1. Select the data screen 81.3 **Servicing, flats, clothing** .
2. Enter the speed as 0.25 m/min in the field **Target speed for flats**.
   - ⇨ The lowest speed for grinding is set.

Result The card flats are started for the grinding.

8.9.7.3 Adjusting the Belt Tension

Orientation This section contains the information about how to adjust the belt tension for the grinding operation.

Prerequisites Make sure that the criteria are obeyed:

✓ A screwdriver is to be used.

1. Move the clamping devices 1 to the lowest position.

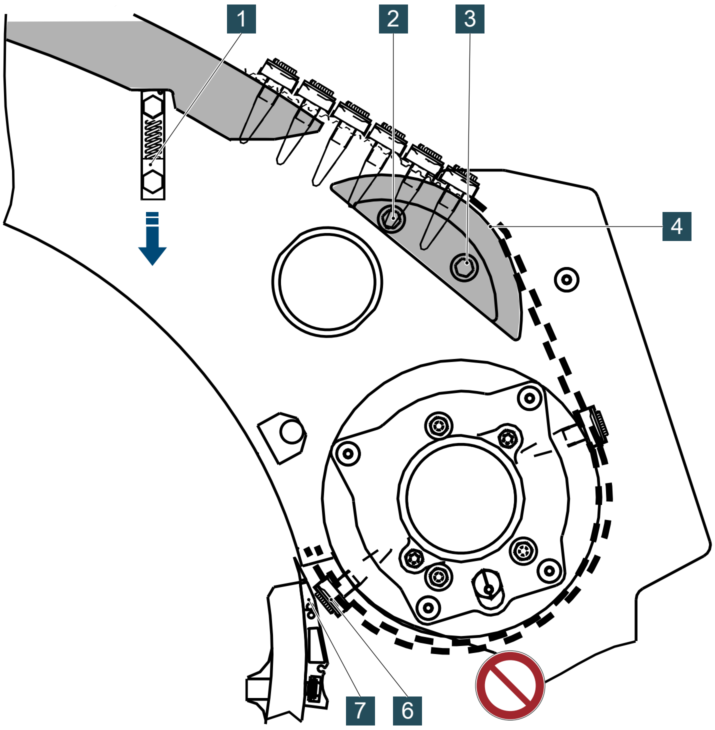


Figure 427: Adjustment of the belt tension

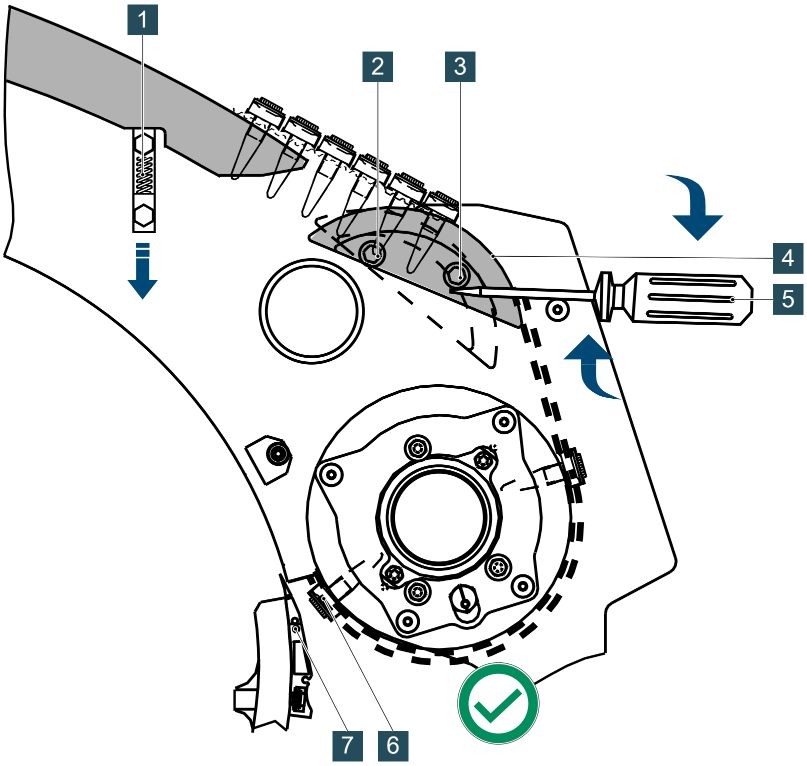


Figure 428: Adjustment of the belt tension

⇨ The tension of the belt is decreased.

⇨ If the belt is loosen, the card flats 6 are possible to rub on the housing plates 7.

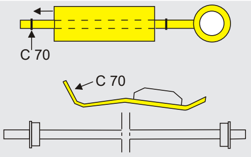
2. Loosen the screws 2 slightly.
3. Loosen the screws 3.
4. To move the deflectors 4 upward as far as possible, use the screwdriver 5.
5. Tighten the screws 3 again.
6. Make sure that the card flats 6 do not rub on the housing plates 7

Result The belt tension is adjusted.

8.9.7.4 Installing the Compensation Device

Orientation This section contains the information about how to install the compensation device for grinding the card flats.

Flat System with Clip	Distance 5 of the Counterweight
Type: GA (general application) 2	133 mm
Type: EF (extra fine) 3	100 mm

	Compensation device	The compensation device is used for the grinding operation of the card flats.

Prerequisites Make sure that the criteria are obeyed:

✓ A compensation device is to be used.

1. Remove 5 card flats 1. See *Replacing the Card Flats* ▸ *510*

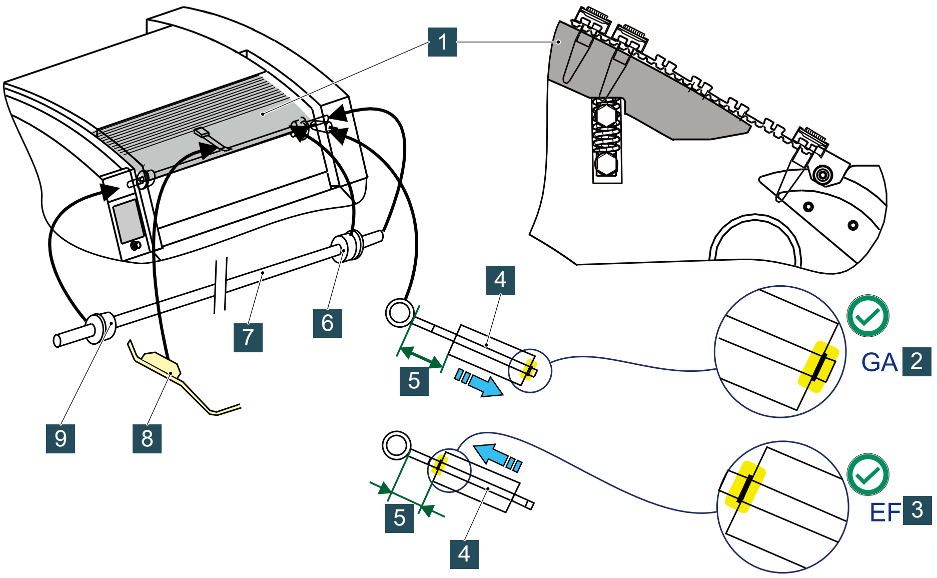


Figure 429: Installation of the compensation device

2. Install the bearing bushings 6 and 9 on the 2 sides of the machine.
3. Push the rod 7 through the bearing bushing 6 and install it into the bearing bushing 9.
4. To install the lever 8, use only the lever 8 with the designation C 70.
5. Adjust the distance 5 of the counterweight 4 related to the type of a card flat used as given in the table.
6. Install the counterweight 4.

Result The compensation device is installed.

8.9.7.5 Doing the Leveling of the Card Flats at the Machine

Condition	Cause	Correction
The grinding roller touches the card flats over the full width.	In this condition, the grinding roller is correctly leveled.	– Push the start button to start the card flat drive. – Do the leveling of all card flats in 2 turns.

Condition	Cause	Correction
All card flats are touched over the full width.	In this condition, the grinding roller is too near to the card flats.	Adjust the grinding roller.
The card flats are only touched on 1 side.	In this condition, the grinding roller is not set parallel to the card flat correctly.	Adjust the parallelity of the grinding roller to the card flats.
The card flats are not touched.	In this condition, the grinding roller is far away.	Correct the grinding rollers during the spot grinding procedure.

1. Do the spot grinding carefully.
2. Do the leveling of the minimum 20 card flats.
3. Push the stop button.
   ⇨ The card flat drive stops.
4. Examine the 20 leveled card flats with the clothing magnifying glass.

Result The leveling of the card flats at the machine is done.

8.9.7.6 Doing the Grinding of the Card Flats

Prerequisites Make sure that the criteria are obeyed:

✓ Make sure that the spot grinding is done.

1. Grind 1 - 2 turn with minimum infeed.
2. Examine the grinding result with the magnifying glass.
3. Calculate the number of needles sharpened freshly.
4. If less than 80 % of the needles have a freshly ground edge, do the grinding again.
5. Grind again 1 - 2 turn with minimum feed.
   ⇨ If 80 % of the needles have a freshly ground edge, then the necessary grinding result is got.

Setting the Counter after Grinding

1. Enter the password. See *Entering the Password* ▸ *70*.
2. Select the data screen 70.1.
3. Enter the counter value as 0 t in the **Flats grinding**.
   ⇨ The counter is set.

Returning the Card Flat Deflectors to the Initial Position

1. Adjust the belt tension with the clamping device.
2. Apply the tension to the card flat belt. See Applying the Tension on the Belt of the Card Flats.

Result The card flat deflectors are back to the initial position.

8.9.7.7 Adjusting the Deflection Elements

Orientation This section contains the information about how to adjust the deflections elements before the removal.

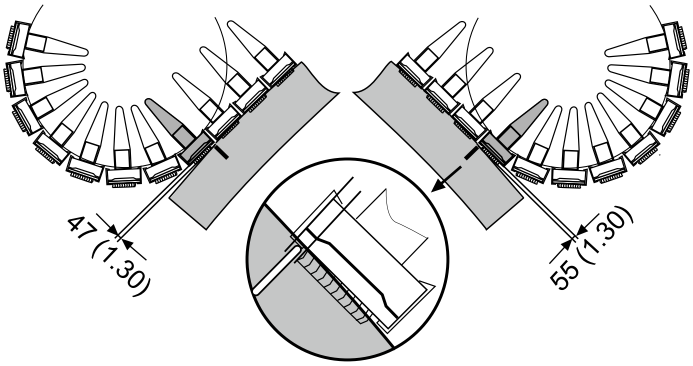


Figure 430: Deflection elements

1. Adjust the deflection elements for the card flats and the same on the feed unit and delivery unit sides. See *Adjusting the Deflection Elements of the Card Flats ▸ 271*.
2. Adjust the safety distance on the adjustment points 47 and 55 to 2.5 mm.
   ⇨ The distance is sufficiently large that collision does not occur during the card flats removal.

Result The deflection elements are prepared for the removal.

8.9.7.8 Replacing the Retaining Clips of the Card Flats

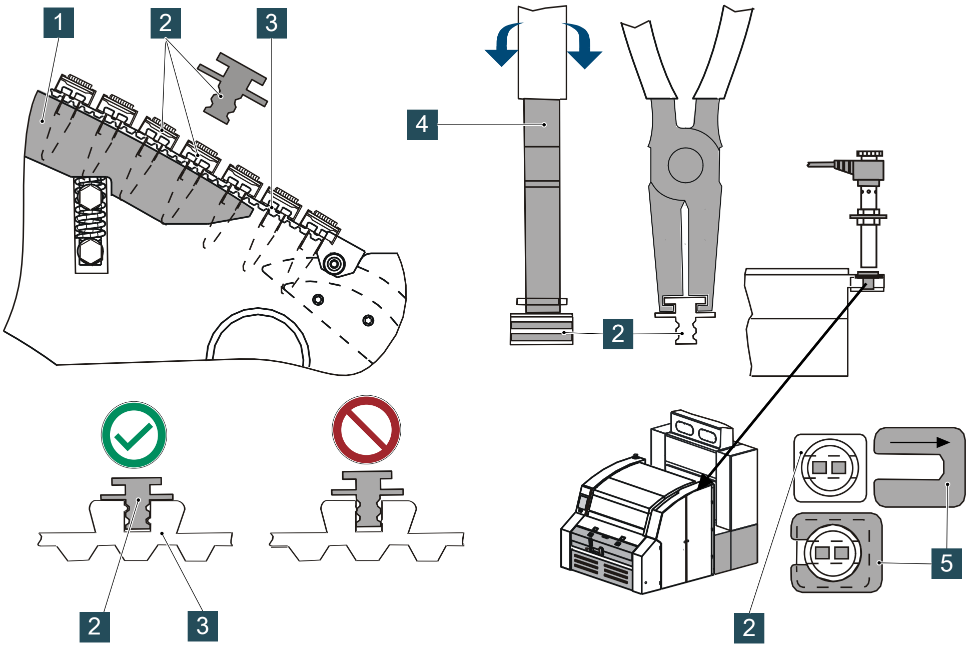
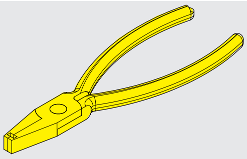


Figure 431: Retaining clips of the card flats

	Nipper	The nipper is used to remove the retaining clips from a flat rod.

Prerequisites Make sure that the criteria are obeyed:

✓ A nipper is to be used.

Removing the Retaining Clips of the Card Flats

1. Lever the retaining clips 2 on the return rail 1 out of the drive belt for the card flats 3.
2. Attach the retaining clip 2 with the pliers 4.
3. Remove the retaining clip 2 with the pliers 4.
4. Keep the removed metal plate 5 for the IGS-top grinding device for the card flats.

   ⇨ The retaining clips of the card flats are removed.

Installing the Retaining Clips of the Card Flats

1. Push the retaining clips 2 on the return rail 1 into the drive belt of the card flats 3.
2. To attach the retaining clip 2, use the nipper 4.

3. Push the retaining clip 2 into the drive belt of the card flats 3 until the retaining clip 2 is flush with the drive belt of the card flats 3.
4. Make sure that the metal plate 5 is attached on the retaining clip 2 for a machine with IGS-top.

   ⇨ The retaining clips of the card flats are installed.

Result The retaining clips of the card flats are replaced.

8.9.7.9 Replacing the Card Flats

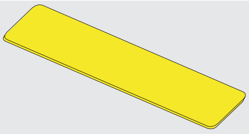
Orientation This section contains the information about how to replace the card flats.

NOTICE

Incorrect tool

Damage to the slide pieces

▶ Do NOT use the screw driver to remove the card flats.

	Card-flat installation aid	The card-flat installation aid is used as an auxiliary equipment to install the card flats.

Prerequisites Make sure that the criteria are obeyed:

✓ A card-flat installation aid is to be used.

Removing the Card Flats

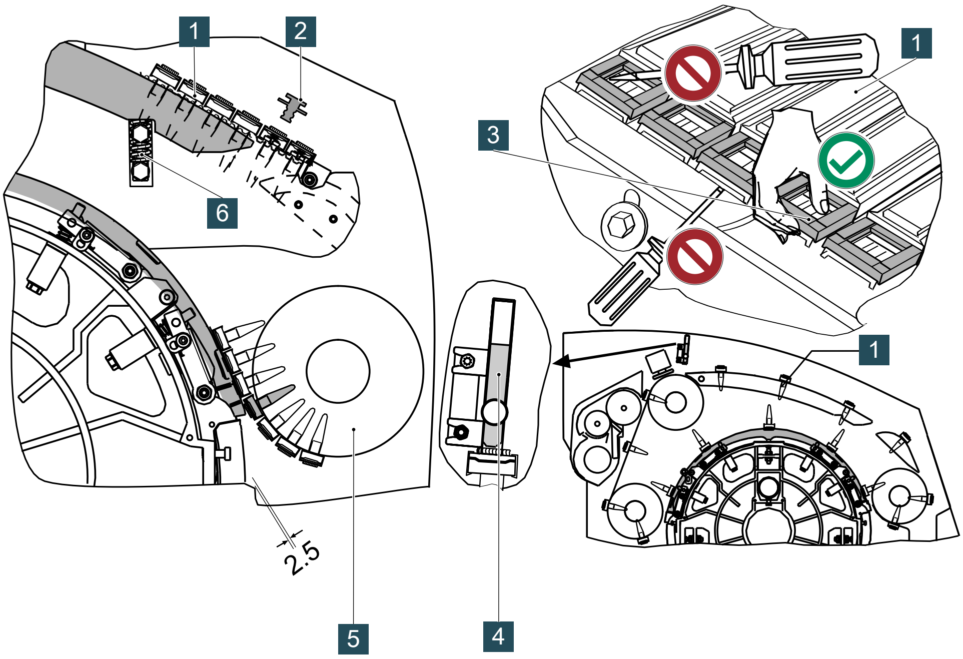


Figure 432: Card flats

1. Adjust the deflection roller 5. See *Adjusting the Deflection Elements before the Removal ▸ 508*
2. Move back the lubricating blocks 4 on the 2 sides.
3. Stop lubricating blocks 4 in the position.
4. Put the card flat 1 in the area between the clamp device 6 and the deflection roller 5.
5. Remove the retaining clip 2.
6. Remove all card flats but keep each 6th card flat 1.
   ⇨ The belt tension stays not damaged.
7. Push the card flats out of the brackets 3 on the 2 sides with hand.
   ⇨ The card flats are removed.

Installing the Card Flats

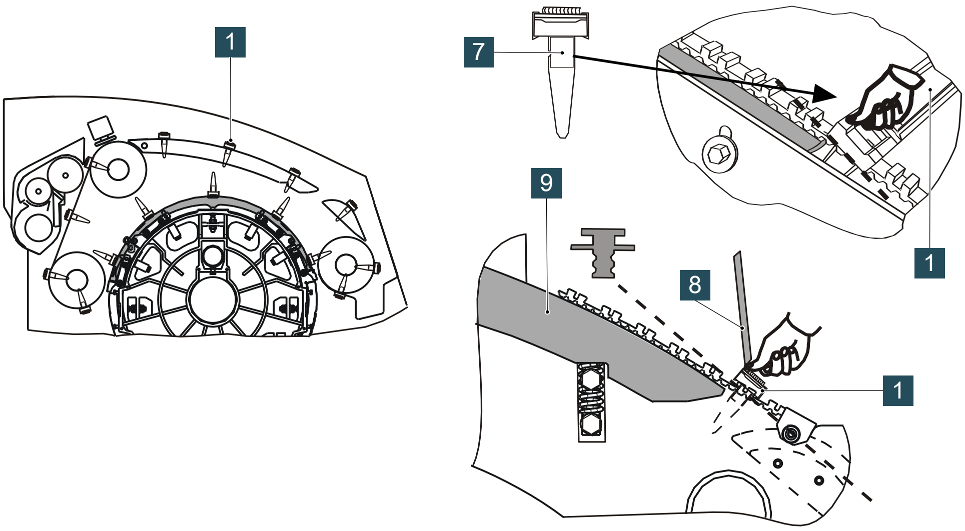


Figure 433: Card flats

1. Refer carefully to the label on the right side of each card flat.
2. Set the card for the card-flat grinding operation. See *Starting the Card Flat for Grinding Operation ▸ 503*
3. Install each 6th card flat 1.
4. Install the card flats 1 behind the return rail 9.
5. Examine the alignment.
6. Make sure each card flat 1 contains the recess 7 across the full width.
7. Make sure that the recess 7 is aligned in the direction of the card chute.
8. Examine the belt tension and the marks on the belts.
9. Put the card flat 1 at a small angle on the 2 sides of the clamp studs.

10. To break into the area between the clamp studs, push the card flat 1 with hand or the card-flat installation aid 8.
11. To let the card flat 1 into the area between the clamp studs, push the clamp studs with the card-flat installation aid 8.

   ⇨ The card flats are installed.

Installing the Last Card Flat

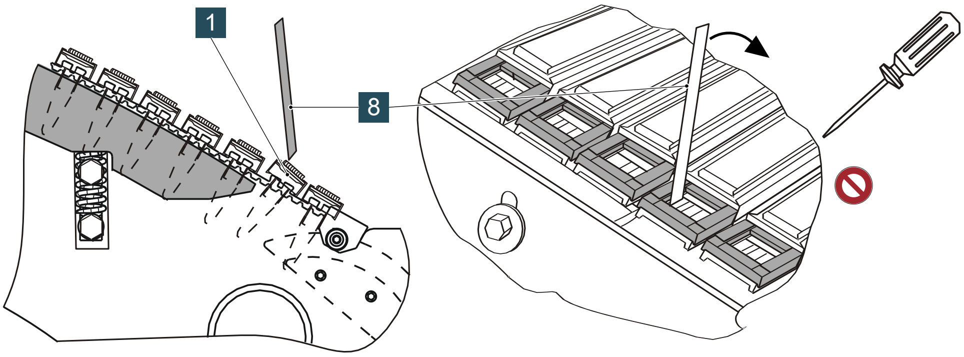


Figure 434: Last card flat

1. Set the card-flat installation aid 8, but refer to the figure.
2. To let the card flat 1 into the area between the clamp studs, push the clamp studs with the card-flat installation aid 8.
3. Install the retaining clips of the card flats. See Installing the Retaining Clips of the Card Flats
4. Make the adjustments for the movement of the card flats. See *Adjusting the Deflection Elements before the Removal ▸ 508*

   ⇨ The last card flat is installed.

Result The card flats are replaced.

8.9.7.10 Disassembling and Assembling the Clothing Strip of the Card Flat Rod

1. See in the manual of the clothing mounting device manufacturer.
2. Install the card flats. See *Replacing the Card Flats ▸ 510*

Result The clothing strip on card flat rod is dismantled and mounted.

8.9.7.11 Preparing the Deflection Elements and the Cylinder Bend

Orientation This section contains the information about how to install the deflector and the flexible bend.

1. Make sure that the distance between the cylinder and the deflection pulley is 20 mm at the 2 movement points 7.

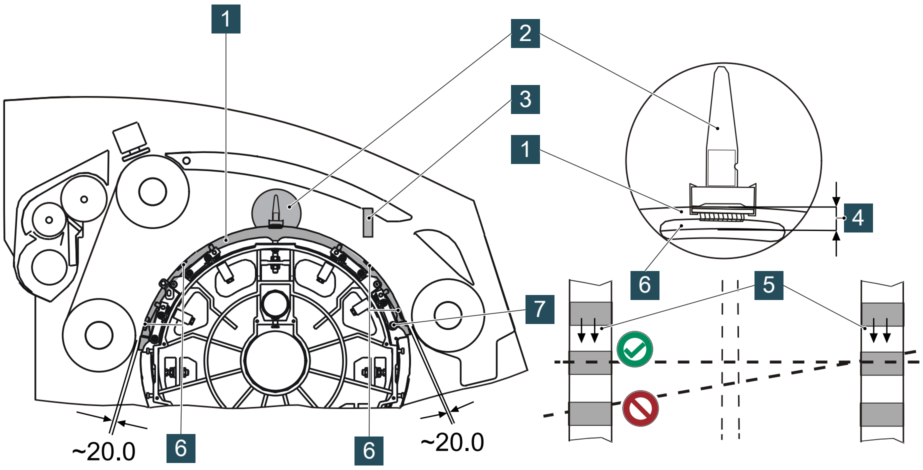


Figure 435: Deflector and flexible bend

2. Move the belt tensioners 3 to the top position.
3. To adjust the card flats belt, refer to the arrows 5.
4. Make sure that the card flats belt is put in position.
   ⇨ Marks on the card flats belt are opposite and not offset.
5. Put a card flat 2 with a dimension of 0.3 mm at the measuring slot 6.
6. Adjust the card flat 2.
7. To measure the distance 4 from the flexible bend 1 to the cylinder, use the depth gauge.
8. To adjust the flexible bend 1 at all measuring slots 6, refer to the distance 4.

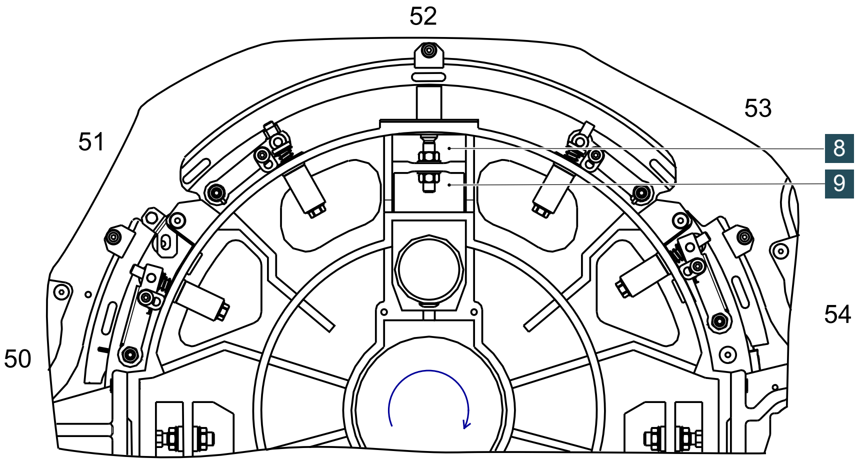


Figure 436: Carding gap

9. Remove the bottom nut 9 and the top nut 8.
10. Lift the flexible bend 1.
    ⇨ The carding gap becomes larger.

11. Lift the flexible bend 1 at the adjustment points (50) and (54) through the rough adjustment.
    - ⇨ The carding gap becomes larger.

Result The deflection elements and the cylinder bend are prepared.

8.9.7.12 Identifying the Different Types of the Card Flats

NOTICE

Incorrect handling of different card flats and slide shoes

Damage of the card flat clothing

- ▶ Only use card flats of the same type in a card flat set.
- ▶ Only use slide shoes of the same type in a card flat set.

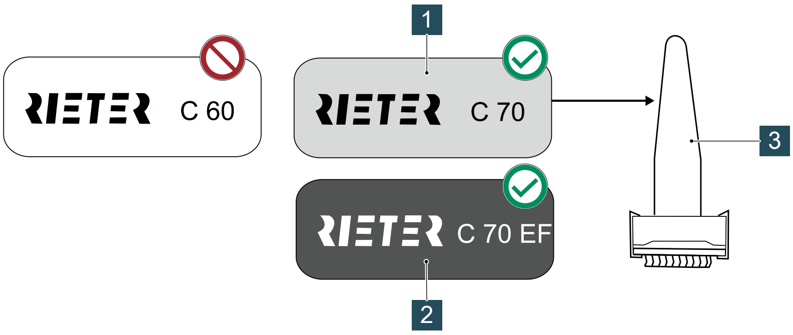


Figure 437: Types of card flat

1	Type of clothing strip: general application	2	Type of clothing strip: extra fine clothing
3	Flat rod for clips		

1. Identify the types of card flats.
2. Use the correct types of card flats 1 and 2.

Result Different types of the card flats are identified.

8.9.8 IGS-classic

This section contains the information about the maintenance work on the IGS-classic.

8.9.8.1 Replacing the Electric Magnet

Orientation The fastening screws 2 are different lengths. To make sure that the internally of the electric magnet 1 is not damaged, the screws 2 must not through more than 4 mm into its housing. Therefore, the screws must not be replaced.

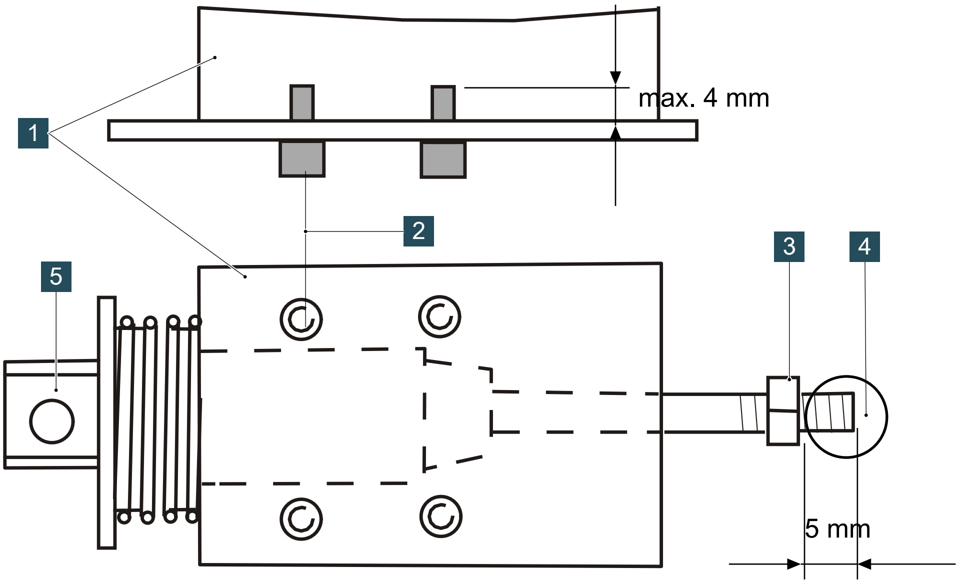


Figure 438: Electric magnet

Removing the Electric Magnet

1. Loosen the screw 3.
2. Remove the piston rod 5 from the shaft 4.
3. Loosen the screws 2.
4. Remove the electric magnet 1.
   - ⇨ The electric magnet is removed.

Installing the Electric Magnet

1. Set the nut 3.
2. Attach the nut 3 with adhesive.
3. Install the electric magnet 1.
4. Put the piston rod 5 into the shaft 4.
5. Tighten the screws 2.
   - ⇨ The electric magnet is installed.

Result The electric magnet is replaced.

8.9.8.2 Examining the Grinding Stone

1. Remove the grinding device. See *Replacing the Grinding Stone* ▶ *518*

2. Examine the color of the grinding stone.
3. If the grinding stone is white, then examine the white grinding stone.
4. If the grinding stone is red, then examine the red grinding stone.

Examining the White Grinding Stone

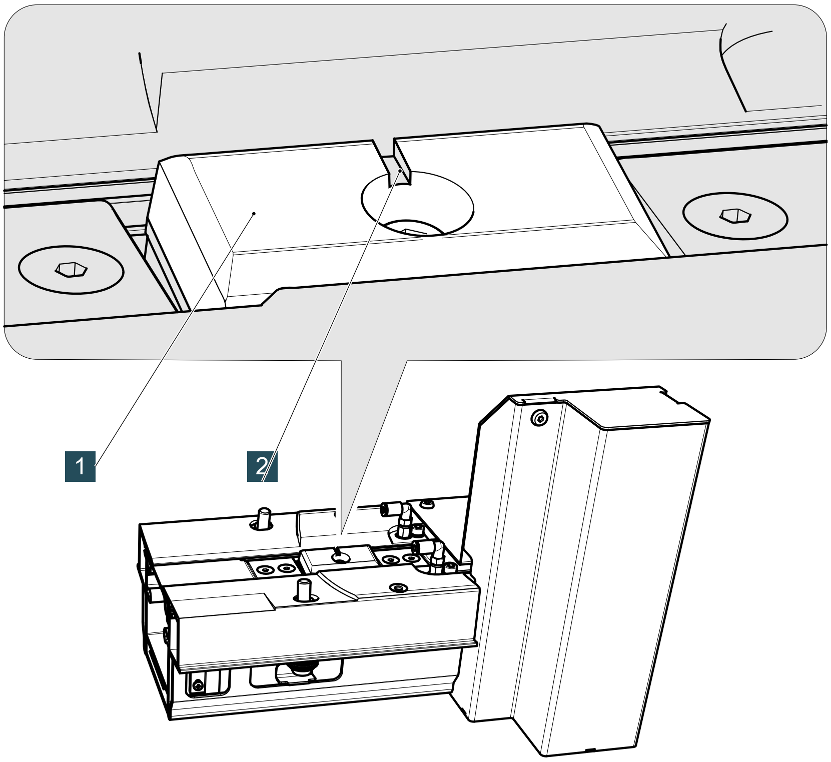


Figure 439: White grinding stone

1. Examine the grinding stone 1 carefully.
2. If the groove 2 is worn, then replace the grinding stone 1. See *Replacing the Grinding Stone ▸ 518*
3. If the groove 2 is not worn, then continue to use the grinding stone 1.
   ⇨ The white grinding stone is examined.

Confirming to Continue the Grinding Operation

1. Select the data screen 70.3 **Maintenance clothings IGS**.
2. Enter the condition as **Stone OK** in **Inspecti.of grindstone**.
   ⇨ 80 grinding cycles are added to the grinding budget.
   ⇨ 606 IGS classic maximum grinding cycles reached.

⇨ After the 5 grinding cycles, no more grinding cycles are added and the grinding stone is to be replaced.

3. Select the data screen 41.3 **Settings IGS**.
4. Enter the status as **Contin. grinding** in **End of service life**.

⇨ The grinding continues until 2 times the cycles of the initial value but not more than maximum of 400 cycles.

Result The grinding stone is examined.

8.9.8.3 Replacing the Grinding Device

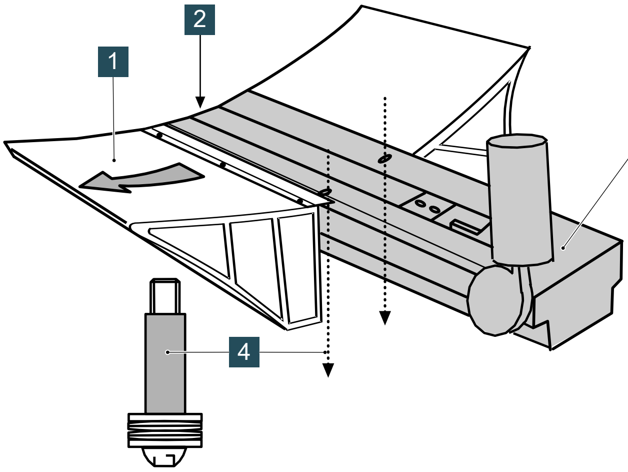


Figure 440: Grinding device

Prerequisites Make sure that the criteria are obeyed:

✓ 2 personnel are necessary for removal and installation of the grinding device.

NOTICE

Incorrect installation of the grinding stone

Clothing damage

▶ Install the grinding stone at the correct position.

NOTICE

Falling of the grinding device!

Damage to the grinding device

▶ 2 persons are necessary for removal and installation of the grinding device.

Removing the Grinding Device

1. Close the compressed-air supply for the card.

2. Loosen the pneumatic hose 2 from the grinding device 3.
3. Disconnect the electric plug connector.
4. Mark the position of the tongue 1.
5. Move the tongue 1 from the doffer.
6. Remove the tongue 1, if necessary.
7. Make sure that the 2 personnel hold the grinding device each side.
8. Remove the 4 screws 4.
9. Lower the grinding device 3.
10. Remove the grinding device 3 out to the right side.

   ⇨ The grinding device is removed.

Installing the Grinding Device

1. Make sure that the drive is at the right side of the machine.
2. Put the grinding device 3 below the machine.
3. Lift the 2 sides of the machine at the same time
4. Tighten the screws 4.
5. Make sure that do not pinch the seal on the casing plate when installing.
6. Attach again the compressed-air hose 2 to the grinder 3.
7. Connect the electric plug connector.
8. Install the tongue 1 in the initial position.
9. Open the compressed-air supply at pressure 6 bar.
10. Make sure that the grinding device must be tested after each installation.

   ⇨ The grinding device is installed.

Result The grinding device is replaced.

8.9.8.4 Replacing the Grinding Stone

Orientation The grinding stone has to be replaced after ach replacement of the cylinder clothing.

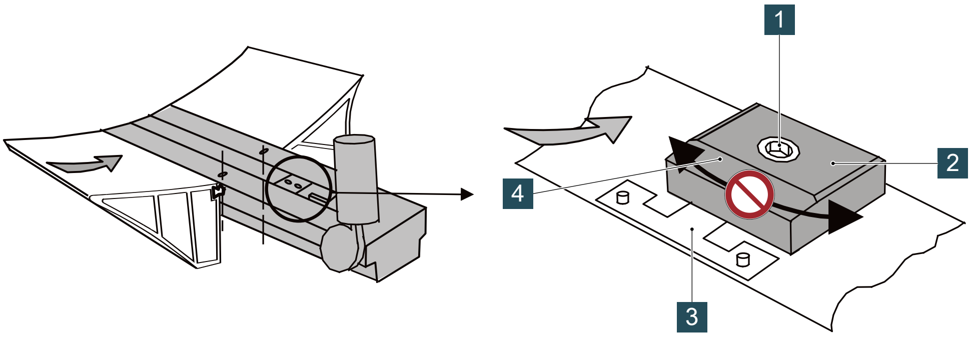


Figure 441: Grinding stone

Prerequisites Make sure that the criteria are obeyed:

- ✓ The grinding device is removed. See *Replacing the Grinding Device* ▸ *517*

NOTICE

Twisting the grinding stone

Damage of the spring plate

▶ Hold the grinding stone tightly when replace the grinding stone.

Removing the Grinding Stone

1. Hold the grinding stone 2 tightly.
2. Install the licker-in motor.
3. Loosen the screw 1.
   ⇨ The grinding stone is removed.

Installing the Grinding Stone

1. Put the grinding stone 2.
2. Make sure that the grinding stone is positioned with the holes in the carrier plate and the positioning pins in the spring plate 3.
3. Make sure that the bevel 4 of the grinding stone must be aligned opposite of the running direction of the cylinder.
4. Hold the grinding stone 2 tightly so that it does not twist when tightened.
5. Tighten the screw 1 fully.
6. Select the data screen 70.3.
7. Select the condition in the field **Inspecti.of grindstone** as **Stone replaced**.
   ⇨ The grinding stone is installed.

Result The grinding stone is replaced.

8.9.8.5 Replacing the Guide Carriage

Orientation This section contains the information about how to replace the guide carriage.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The grinding stone is on the right side of the machine.
- ✓ The grinding device is to be connected to the compressed air at the position where the guide carriage becomes removed.
- ✓ The compressed-air pressure is less than 6 bar.

Removing the Guide Carriage

1. Loosen the screws 6.

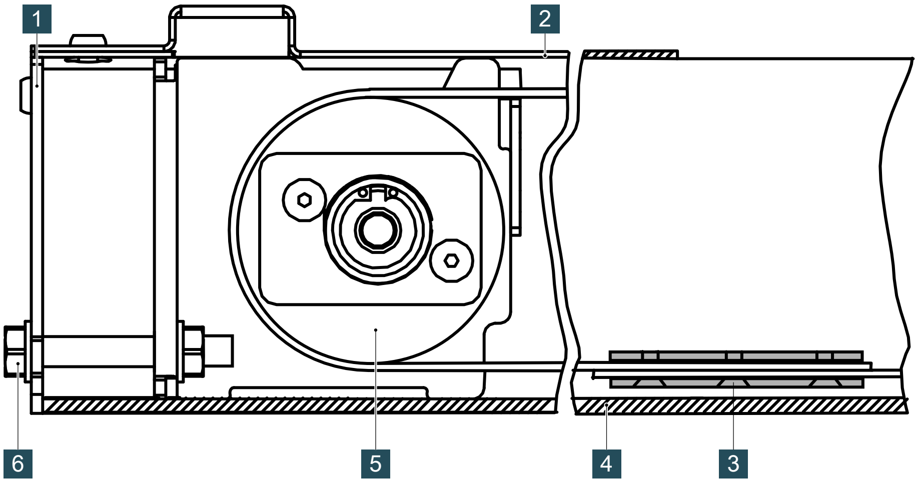


Figure 442: Deflection unit

⇨ The tension is released from the flat belt 2.

2. Remove the cover 4 below the carrier.
3. Hold the deflection unit 5.
4. Remove the screws 3.
5. Remove the cover plate 1.
6. Pull the deflection unit 5 out of the carrier.

   ⇨ The deflection unit 5 is removed.
7. Remove the clamping plates 7 from the guide carriage 11.

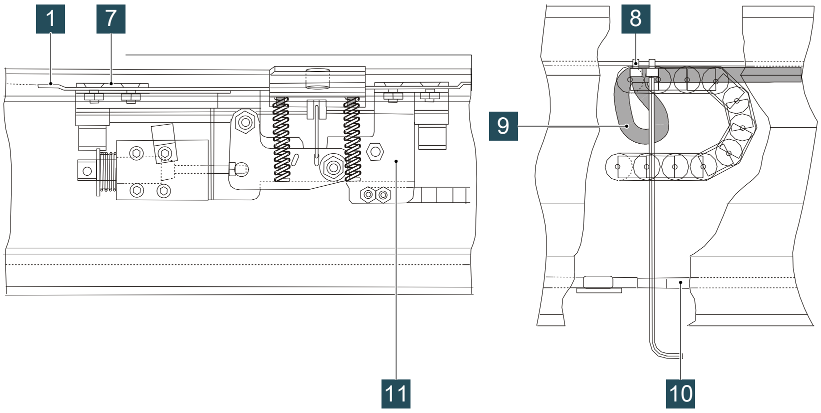


Figure 443: Guide carriage

8. Remove the sealing plug 10 in the middle of the carriage.
9. Move up the cable loop 9 on the opposite side as far as possible.

   ⇨ The access to the screws 8 is open.
10. Remove the screws 8 of the beginning of the chain with a long, 2.5 mm long hexagonal key.
11. Move out the guide carriage 11 carefully to the backside.

⇨ The guide carriage is removed.

Installing the Guide Carriage

1. Put the guide carriage 11 into the profile.

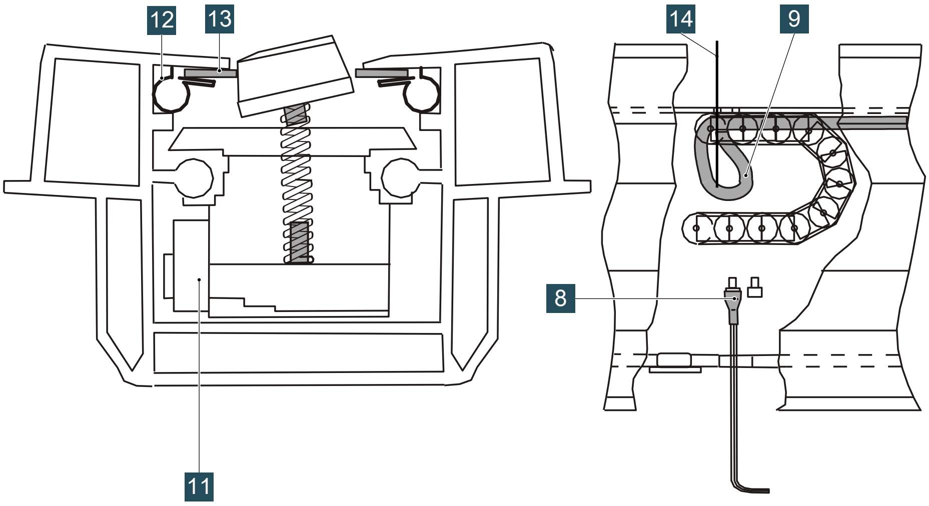


Figure 444: Installation of the guide carriage

2. Put the piece of wire 14 or equivalent material into the tapped bore.

   ⇨ The piece of wire 14 is easily access in to the screw holes for that recommended above procedure.

3. Attach the screw 8 to the hexagonal key with the adhesive tape.
4. Bend the cable loop 9 upward.
5. Install the screw 8.

   ⇨ The wire 14 shows the position of the tapped bore.

6. Install the deflection unit 5.
7. Put the flat belt 13 into the deflection unit 5 at the same time monitor a tab of the flat belt 13.
8. Start the compressed-air supply.
9. Make sure that the pressure of the compressed-air supply is less than 6 bar.

   ⇨ The clamp contours 12 become wide.

10. Move the flat belt 13 carefully between the clamping contours 12 and the profile.

    ⇨ The pressure hoses installed in the clamp contour 12 are sensitive.

11. Install the remaining parts.

    ⇨ The guide carriage is installed.

Result The guide carriage is replaced.

8.9.8.6 Removing the Clamp contour of the Flat Belt

Prerequisites Make sure that the criteria are obeyed:

✓ The grinding device is removed. See *Replacing the Grinding Device ▸ 517*

1. Remove the screws 7.

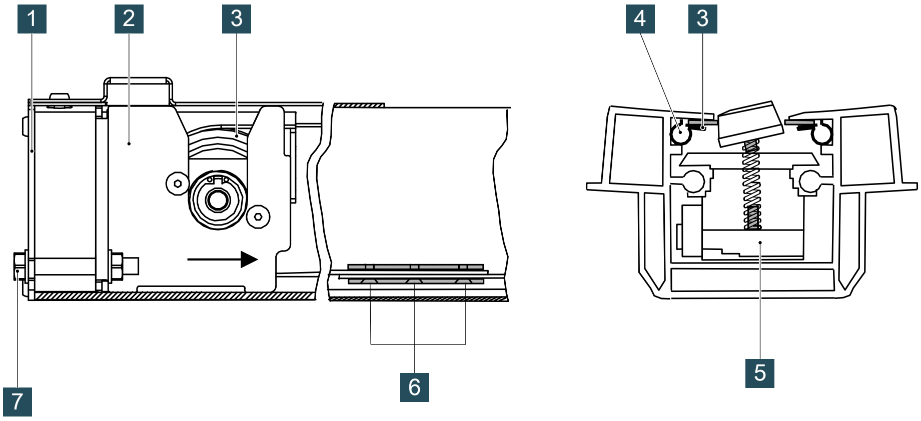


Figure 445: Removal of the clamp contours (flat belt)

2. Put the grinding device on the left side of the machine on the ground, and reconnect the compressed air.
3. Remove the rear operating unit 1.
4. Remove the clamping plates 6.
5. Disconnect the connection of the flat belt 3 in the area of the guide carriage 5.
6. Remove the flat belt 3.
7. Make sure that the clamp contours 4 are widened through the pressure hoses.
8. Remove the compressed-air connection.
9. Pull the deflector 2 out of the clamp contours 4.
10. Remove the compressed-air fittings from the pressure hoses.
11. Pull the clamp contours 4 with the pressure hoses out of the contours.

Result The clamping profiles of the flat belt are removed.

8.9.8.7 Replacing the Clamping Profiles of the Flat Belt

Orientation This section contains the information about how to replace the clamp contour of the flat belt.

Removing the Clamp Contour of the Flat Belt

Prerequisites Make sure that the criteria are obeyed:

✓ The grinding device is removed. See *Replacing the Grinding Device ▸ 517*

1. Remove the screws 7.

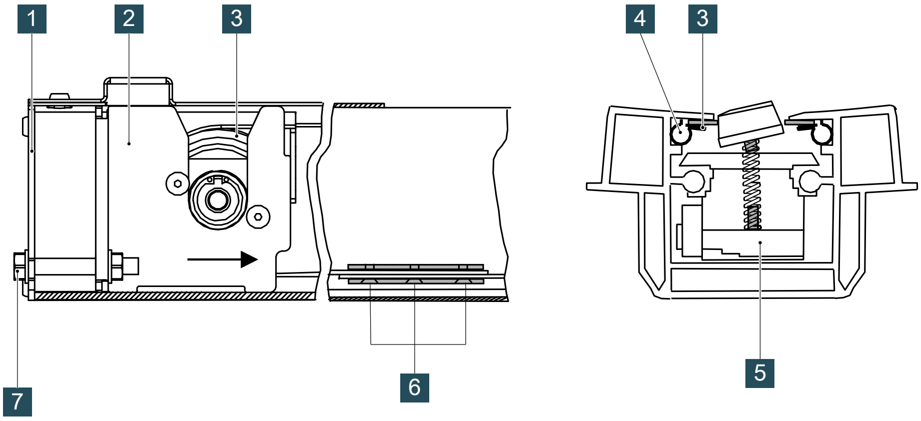


Figure 446: Removal of the clamp contours (flat belt)

2. Put the grinding device on the left side of the machine on the ground, and reconnect the compressed air.
3. Remove the rear operating unit 1.
4. Remove the clamping plates 6.
5. Disconnect the connection of the flat belt 3 in the area of the guide carriage 5.
6. Remove the flat belt 3.
7. Make sure that the clamp contours 4 are widened through the pressure hoses 8.
8. Remove the compressed-air connection.
9. Pull the deflector 2 out of the clamp contours 4.
10. Remove the compressed-air fittings from the pressure hoses 8.
11. Pull the clamp contours 4 with the pressure hoses 8 out of the contours 4.
    ⇨ The clamp contour of the flat belt is removed.

Installing the Clamp Contour of the Flat Belt

Prerequisites Make sure that the criteria are obeyed:

✓ M4 cylinder screw is to be used.

1. Make sure that the pressure hose 8 supplies with a sliding covering and must not be lubricated.

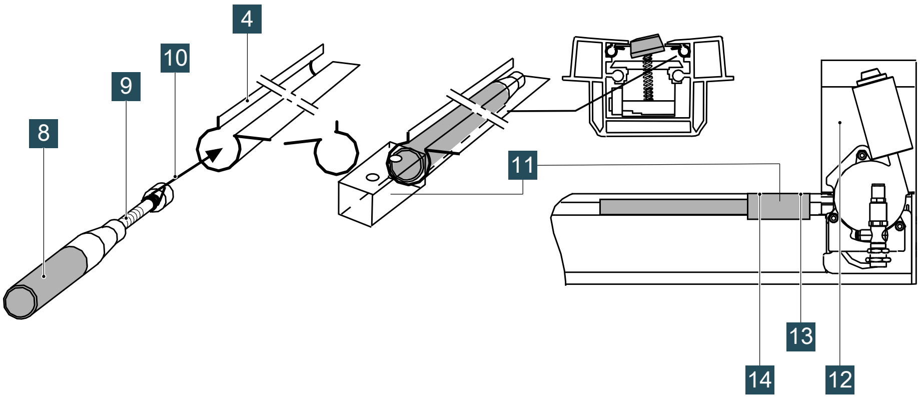


Figure 447: Clamp contours of the flat belt

2. Attach a screw 9 in the pressure hose 8 screw 9.
3. Attach a cord 10 onto the head of the screw 9.
4. Pull the cord into the clamp contour 4.
5. Make sure that the pressure hose 8 must be distributed in the clamp contour 4 equally.
6. Carefully pull the pressure hose 8 into the clamp contour 4 with a cord 10.
7. Remove the screw 9.
8. Move the clamp contour 4 into the carrier contour.
9. Attach the connection piece 11 points toward the drive 12.
10. Attach the connection piece 11 with the screw 13 (M5 × 8 mm and washer.)
11. Connect the compressed air on the connection 14.

    ⇨ Clamp contour of the flat belt is installed.

Result The clamp contour is replaced.

8.9.8.8 Applying Tension to the Flat Belt

Orientation This section contains the information about how to apply the applying tension and releasing tension from the flat belt.

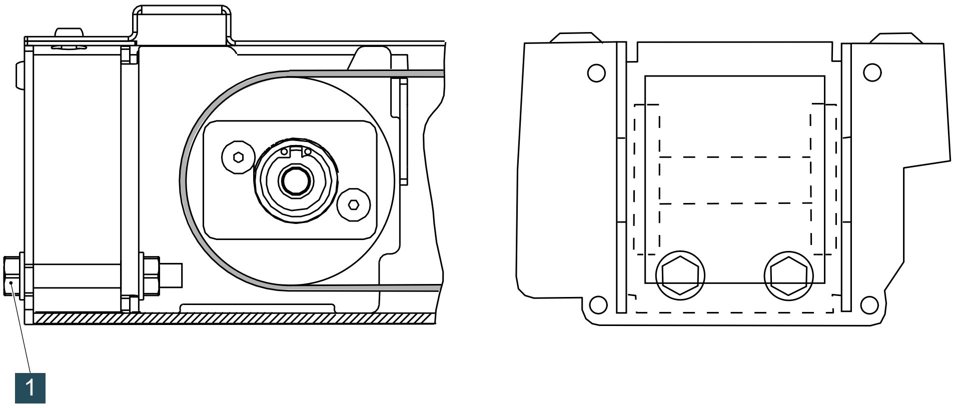


Figure 448: Flat belt

Belt Tension and Marks	
Belt tension	0.8 – 1.0 %
Distance between marks	1 008.0 mm – 1 010.0 mm

1. Remove the screws 1.

   ⇨ The flat belt is loose.
2. Make 2 lines on the flat belt at a distance of 1 000 mm.
3. Pull the deflector unit to the rear with the screws 1.

   ⇨ The flat belt is tightened.

Result The flat belt tension is applied.

8.9.8.9 Doing a Check of the Electric Magnet

Orientation In test operation, determine whether the whetstone can be moved up and down. If this is not the case then various faults can be the cause.

The diode is designated in the electric circuit diagram.

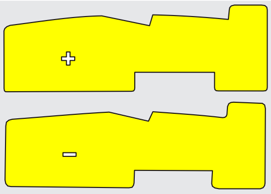
Investigate the possible cause of the fault before electromagnet is replaced.

1. Select data screen 85.1.
2. Examine the diode in the socket outlet for connection of the cylinder grinding device.
3. A mechanical cause in the guide carriage prevents movement.
4. The electromagnet is defective.
5. Make sure that the guide carriage is not in park position on the right side of the machine.

Result The electromagnet is examined.

8.9.8.10 Adjusting the Grinding Stone Position

Orientation The height of the grinding stone is to be adjusted, only when the electric magnet is replaced.

	Adjustment gauges

Prerequisites Make sure that the criteria are obeyed:

- ✓ The electric magnet is replaced.
- ✓ The adjustment gauges are to be used.

Examining the Height of the Grinding Stone with the Adjustment Gauge (+)

1. Push the piston rod 6.

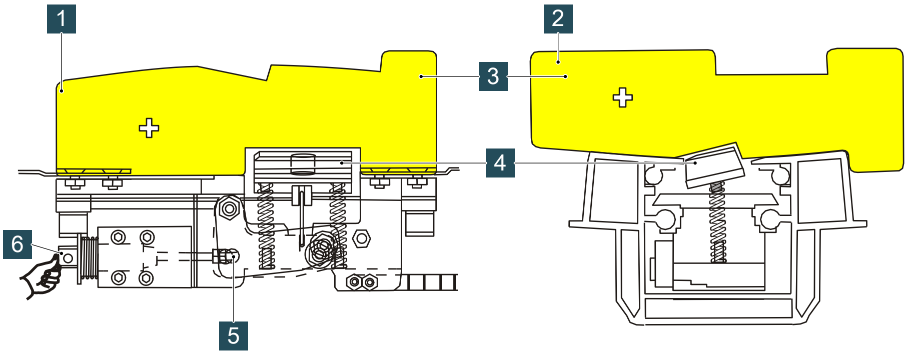


Figure 449: Examination the height of the grinding stone with the adjustment gauge (+)

2. Hold the adjustment gauge 3 on the guide block in the longitudinal direction at the position 1 as shown in the figure.
3. Hold the adjustment gauge 3 on the guide block in the transverse direction at the position 2 as shown in the figure.
4. Examine the end position of the grinding stone 4.
5. Make sure that the air gap can be seen between the adjustment gauge 3 and the grinding stone 4.

Examining the Height of the Grinding Stone with the Adjustment Gauge (-)

1. Push the piston rod 6 forward.

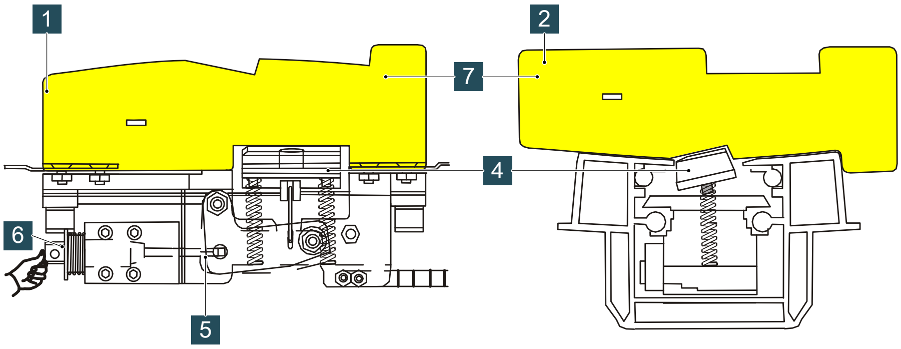


Figure 450: Examination of the height of the grinding stone with the adjustment gauge (-)

2. Hold the adjustment gauge 7 on the guide block in the longitudinal direction at the position 1 as shown in the figure.
3. Hold the adjustment gauge 7 on the guide block in the transverse direction at the position 2 as shown in the figure.
4. Make sure that no air gap can be seen between the adjustment gauge 7 and the grinding stone 4.

Correcting the Height of the Grinding Stone

1. If the position of the grinding stone 4 is high, turn the piston rod 6 clockwise with a mandrel that is put in the opening.
2. If the position of the grinding stone 4 is low, turn the piston rod 6 counterclockwise with a mandrel that is put in the opening.
3. Hold the nut 5 with pointed piles and tighten the nut with the screwdriver.

Result The grinding stone position is adjusted.

8.9.8.11 Pressure-Reducing Valve

The pressure reducing valve 1 is factory set to 4 bar and must not be adjusted.

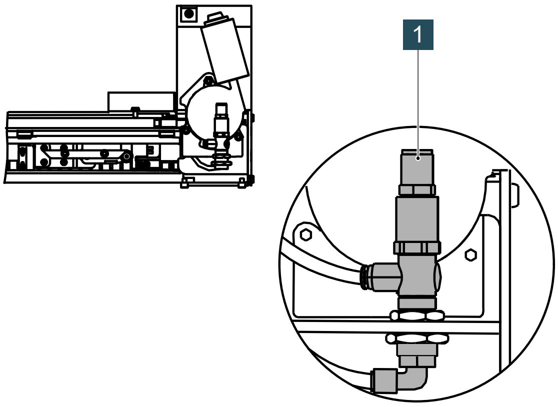


Figure 451: Pressure reducing valve

8.9.8.12 Doing a Function Test of the IGS-classic

Orientation The electromagnet is not activated during the function test. Consequently the grinding stone is not located in the grinding position.

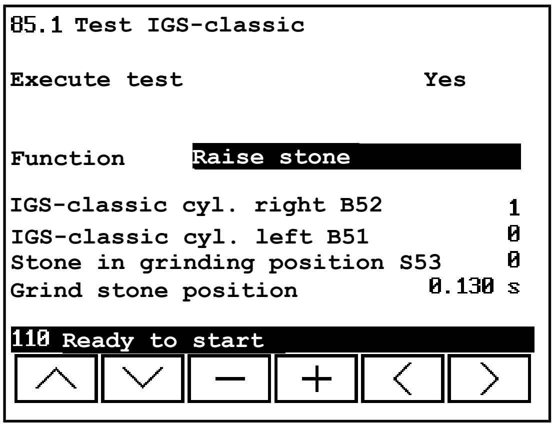
An alarm is output if, after a test has been completed, the guide carriage is not in its parking position on the right side of the machine.

Reset the alarm and then the guide carriage can be brought into its parking position using the function to the right.

Reaction	
Function : **Move to left position**	The guide carriage is moved out of the parking position on the left side of the machine.
Function : **Move to right position**	The guide carriage is moved from the left side of the machine into its parking position on the right side of the machine.
Function : **Raise stone**	The grinding stone is raised and lowers itself again after 22 seconds. The electromagnet must first cool down before a renewed test can be carried out. The test can only be carried out with the grindstone in its parking position (on the right side of the machine). The position of the grindstone is monitored by a micro switch.
Function : **Sealing lips**	The sealing lips are put under pressure.
Function : **Cycles**	As the grinding stone is lowered, the guide carriage goes from the parking position to the left and then back to the right side of the machine.

1. Select the **Test mode** in data screen 80.1 **Operating mode** operating mode.

   ⇨ Test functions in the menus 82 - 85 can be executed.



```
85.1 Test IGS-classic

Execute test                  Yes


Function     Raise stone

IGS-classic cyl. right B52       1
IGS-classic cyl. left B51        0
Stone in grinding position S53   0
Grind stone position         0.130 s

110 Ready to start
```

Figure 452: Data screen 85.1

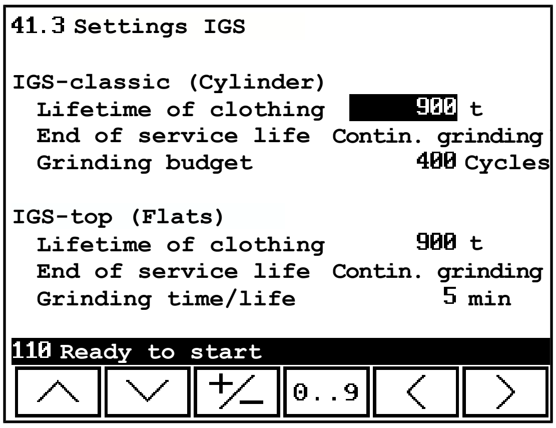
2. Select data screen 85.1.
3. In the line **Execute tests** activate the test. Selection **Yes**.
4. In the line **Function** select the function: **Move to left position** or **Move to right position** or **Raise stone** or **Sealing lips** or **Cycles**
5. Tap the enter key, to confirm the selection.
6. Tap the start key.
   - ⇨ The function will be activated.
   - ⇨ On the right, the data screen also shows the states of the corresponding sensors and possibly whether the function has started (=1) or stopped (=0).
7. Test the functions and refer to the table above.
8. In the line **Grind stone position** pay attention to the time (0.1 – 0.3 s).
9. If the time is more than 0.3 s, examine the grinding stone movement mechanism, if it takes longer than the allotted time.

Result The function test of IGS-Classic is executed.

8.9.9 IGS-top

This section contains the information about the maintenance work on the IGS-top.

8.9.9.1 Doing a Reset of the Service Life of the Card Flat Clothing



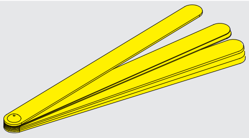
```
41.3 Settings IGS

IGS-classic (Cylinder)
  Lifetime of clothing       900 t
  End of service life  Contin. grinding
  Grinding budget            400 Cycles

IGS-top (Flats)
  Lifetime of clothing       900 t
  End of service life  Contin. grinding
  Grinding time/life           5 min

110 Ready to start
```

Figure 453: Data screen 41.3

1. Select the data screen 41.3.
2. Enter the value between 100 and 4 000 t in the field **IGS-top (Flats)** in **Lifetime of clothing**.
3. Enter the status in the field **End of service life** as **Stop grinding**.
4. Enter the value in the field **Grinding time/life** as 5 min.

Result The service life of the card flat clothing has been reset.

8.9.9.2 Making the Grinding Brush Parallel to the Card Flats

Figure	Tool Name	Functional Description
	Card gauge	The card gauge is used to measure the distance between the machine parts.

Prerequisites Make sure that the criteria are obeyed:

✓ A card gauge is to be used.

1. Make sure that correct tension is applied to the belt of the card flats 10 before the adjustment in the alignment. See *Applying Tension to the Card Flat Belt ▶ 580*

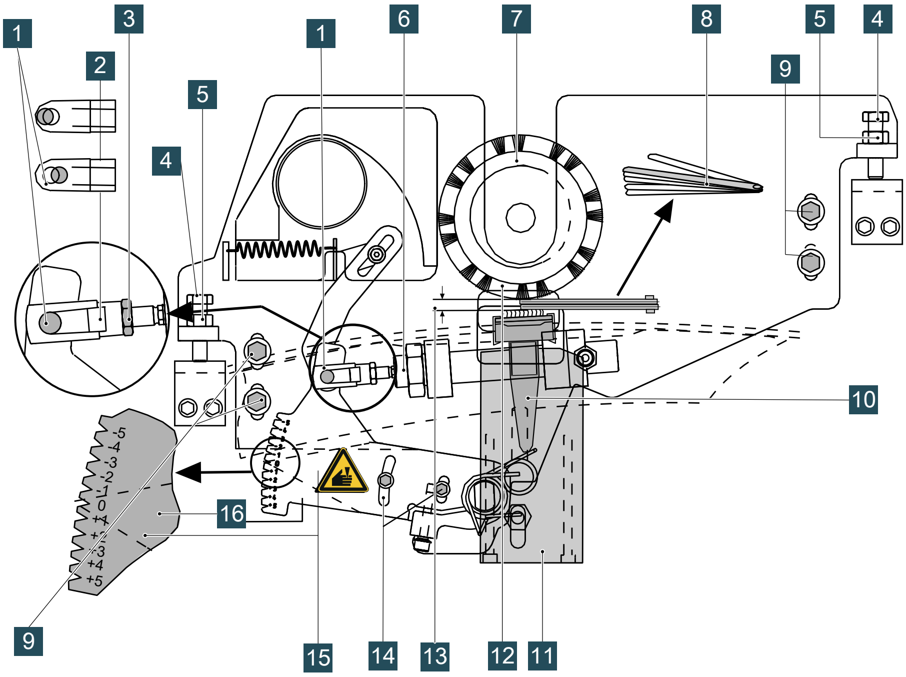


Figure 454: Grinding brush and the card flats

2. Align a card flat 10 with a line of bristles 12 of grinding brush 7 accurately.
3. Disconnect the connection of the bores 1 to the pneumatic cylinder 6.
4. Loosen all the screws 14.
5. Adjust the actuator system lever 16 related to the lever 15 until the point of the lever 15 is at the position 0.
6. Tighten all the screws 14.
7. Make sure that the slides shoes 11 do not touch the card flats 10.
8. Make sure that card flats 10 rest on the return rail.
9. Loosen the screws 9 slightly.
10. Loosen the nut 5.
11. Engage the card gauge 8 from the direction of the material feed.
12. To adjust the distance 13 between the grinding brush bristles 12 and the grinding brush 7 by 4.0 mm, use the screws 4.
13. Tighten again the screws 9 and the nut 5 fully.
14. Adjust the distance 13 on the 2 sides.
15. Put the piston rod into the pneumatic cylinder 6.
16. Tighten the fork head 2 in or out to align the bores 1.
17. Tighten the nut 3 after the connection.

Result The grinding brush is made parallel to the card flats.

8.9.9.3 Examining the Grinding Pressure

Orientation The power consumption with grinding brush contact on the card flats clothing is examined.

1. Remove the covers 2.

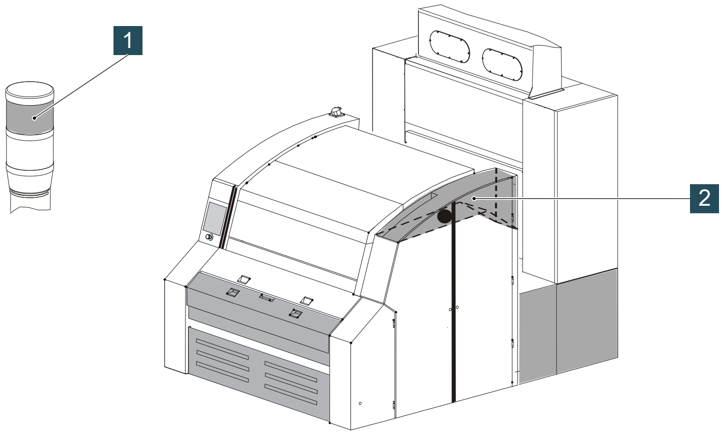
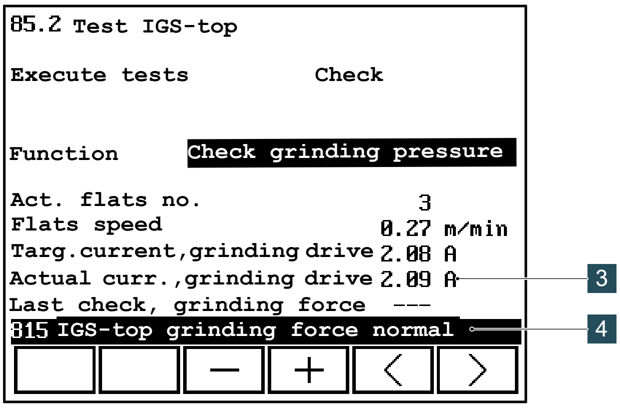


Figure 455: Examination of the power consumption

2. Start the grinding drive to grind card flats. See *Starting the Card Flats for the Grinding ▶ 503*
3. Select the data screen 85.2.



```
85.2 Test IGS-top

Execute tests          Check


Function        Check grinding pressure

Act. flats no.                      3
Flats speed                    0.27 m/min
Targ.current,grinding drive 2.08 A
Actual curr.,grinding drive 2.09 A
Last check, grinding force  ---
815 IGS-top grinding force normal
```

Figure 456: Data screen 85.2

4. Select the function **Check grinding pressure** in the field **Function** .
5. Record the power consumption in **Actual curr.,grinding drive**.
   ⇨ The actual power consumption is shown.
6. Move the first card flat into the grinding position with the pneumatic lever in 10 seconds.
7. See the measured grinding pressure in the status 4 as a message.
   ⇨ The signal lamp 1 shows the indication.
   ⇨ The measured power consumption is shown at 3 in the data screen.

8. Do the measurement of minimum 2 card flats.
9. Read the status in the field **Grinding force**.
   ⇨ If the status is **Normal** and the signal lamp does not comes on, the grinding pressure is correct.
10. If the **Grinding force** status is **High** or **Too high**, and the signal lamp comes on, decrease the grinding pressure. See *Adjusting the Grinding Pressure* ▸ *533*
11. If the **Grinding force** status is **Low** or **Too low**, and the signal lamp flashes, increase the grinding pressure. See *Adjusting the Grinding Pressure* ▸ *533*
12. Wait minimum of 10 card flats after the last change of grinding pressure.
    ⇨ After that the result of the grinding pressure test is saved.

Result The grinding pressure is examined.

8.9.9.4 Adjusting the Grinding Pressure

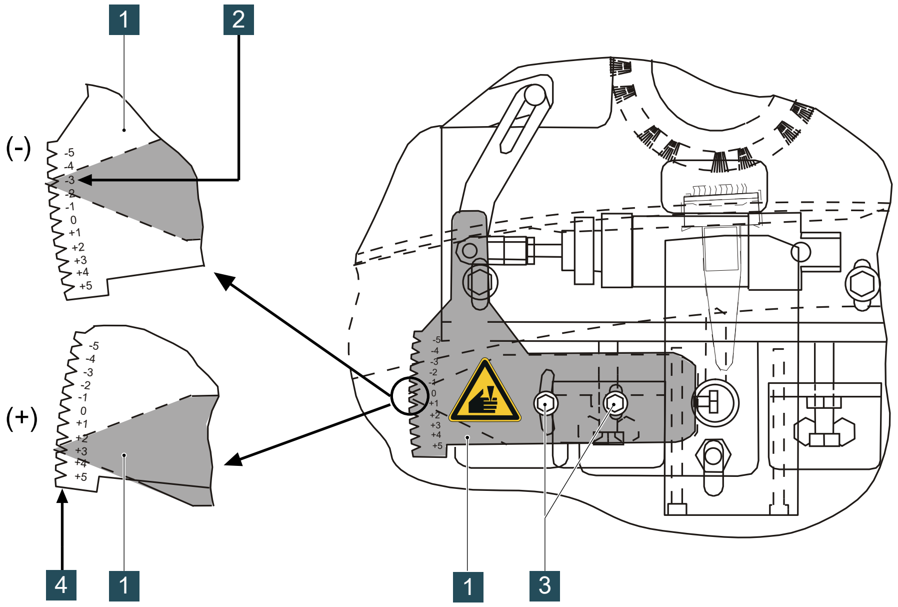


Figure 457: Grinding pressure

WARNING

Moving machine components!

Risk of hand injury

- ▶ Do NOT touch the machine components that move.
- ▶ Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- ▶ When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

1. Set the grinding brush parallel to the card flat clothing. See *Adjusting the Grinding Brush with the Card Flats* ▸ *530*
2. Examine the position of the grinding brush. See *Examining the Position of the Grinding Brush* ▸ *535*
3. Examine the current consumption on the card flat clothing. See *Examining the Grinding Pressure* ▸ *532*

Decreasing the Grinding Pressure

Orientation Below instruction is about how to decrease the grinding pressure.

If the status of the **Grinding force** is **Too high** or **High**:

1. Select the data screen 70.3 **Maintenance clothings IGS**.
2. Loosen the screws 3 from the 2 sides.
3. **WARNING! Moving machine components! Risk of hand injury.** Push the actuator system levers 1 some notches on the scale 2 in the direction (-).
4. Examine the power consumption again.
5. If necessary, adjust the grinding pressure with the levers 1.
   ⇨ If excessive current draw continues, then increase the mechanical basic setting from 4.5 to 5.0.
6. Adjust the grinding brush with the card flats. See *Making the Grinding Brush Parallel to the Card Flats* ▸ *530*.
   ⇨ The grinding pressure is decreased.

Increasing the Grinding Pressure

Below instruction is about how to increase the grinding pressure.

If the status of the Grinding force is **Too low** or **Low**:

1. Select the data screen 70.3 **Maintenance clothings IGS**.
2. Move the actuator system levers 1 by some notches on scale 4 in the direction (+).
3. Make the adjustments on the 2 sides.
4. If the grinding pressure is not sufficient, then decrease the mechanical basic setting to 3.0 from 3.5.
   ⇨ The grinding pressure is increased.
5. After each change, see the status of the grinding pressure in the data screen 70.3 **Maintenance clothings IGS**.

Result The grinding pressure is adjusted.

8.9.9.5 Installing the Grinding Brush

Orientation The grinding brush is to be replaced only if the bristles are worn fully.

1. Apply a thread-lock compound on the thread 2.

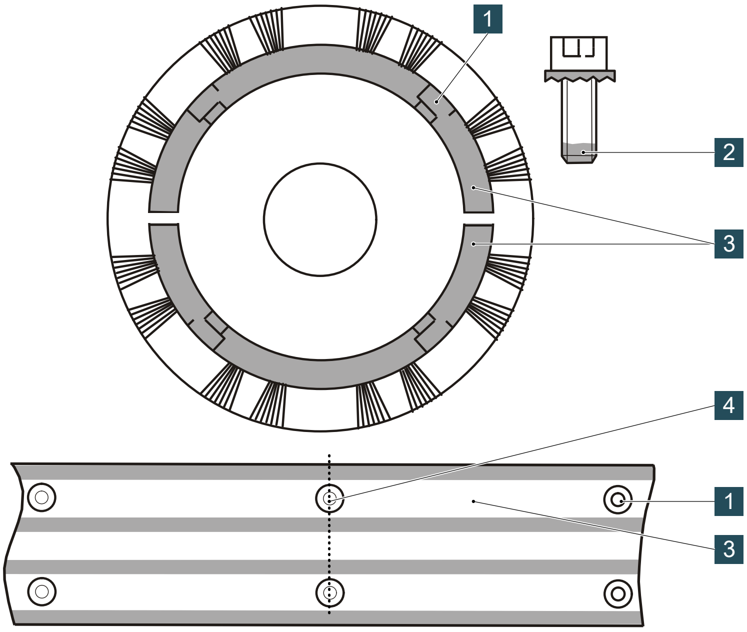


Figure 458: Installation of the grinding brush

2. Install all screws 1.
3. Install the 2 parts of the grinding brush 3 in pairs.
4. Record the grinding brush 3 number.
5. Tighten the screws 1 starting from the middle point 4 with the tightening torque of 10 Nm.
6. Adjust the grinding pressure after the installation of the grinding brush 3.See *Adjusting the Grinding Pressure ▶ 533*

Result The grinding brush is installed.

8.9.9.6 Examining the Position of the Grinding Brush

Prerequisites Make sure that the criteria are obeyed:

✓ A flashlight is to be used.

WARNING

Moving machine components!

Risk of hand injury

- Do NOT touch the machine components that move.
- Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

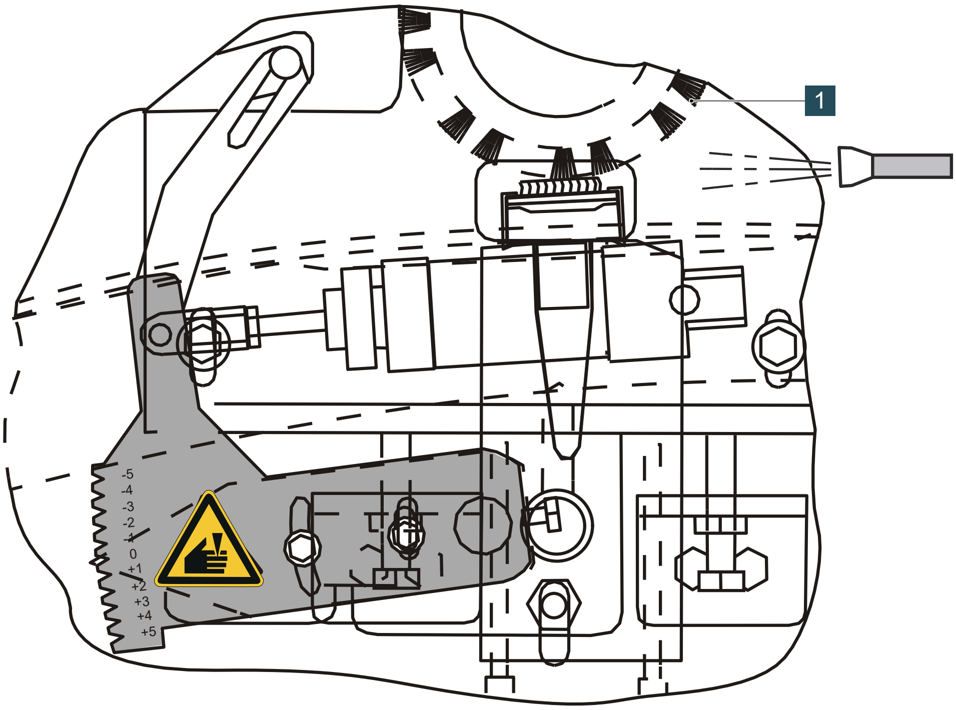


Figure 459: Grinding brush

1. Examine the grinding brush 1 from the side of the card chute with a flashlight.
2. **WARNING! Moving machine components! Risk of hand injury.** Make sure that the bristles of the grinding brush 1 touch the card flat clothing but do not penetrate the card flat clothing.
3. Examine the position of grinding brush 1 from the opening in the side panel.
4. Make sure that the grinding brush 1 bristles equally touch the right card flat and the left card flat.

   ⇨ The basic adjustment of the grinding brush 1 is correct.

Result The position of the grinding brush is examined.

8.9.9.7 Recommendations for the Leveling of the New Card Flat Clothings

The positions of the needles, new card flat clothings may change slightly after the production of several tonnes of material. We recommend levelling the card flats with the grinding roller after this time has lapsed to meet high technological requirements for quality.

Close the doors on the right-hand side of the machine. See *Closing the Doors* ▸ *331*

Adjust grinding pressure. See *Adjusting the Grinding Pressure* ▸ *533*

Adjusting the card flats (with IGS-Top, without IGS-Classic)

Adjust the card flats after the cylinder clothing has been ground with the grinding roller.

If the cylinder clothing is not ground during its service life, the card flats must be adjusted after half the service life of the cylinder clothing.

Adjusting the card flats (with IGS-Top and with IGS-Classic)

Adjusting the card flats (IGS-Top and IGS-Classic are present)

Adjust the remaining settings in the cylinder range also, if needed.

Adjusting and/or replacing the grinding brush

IGS-Top grinding brush service life

The IGS-Top grinding brush is subject to wear; proper functioning of the brush is no longer guaranteed after extended use

Replace a severely worn grinding brush.

8.9.9.8 Service Life and Grinding Cycles

Entering the service life of the card flats clothing

The value for the card flats clothing service life is derived from the values gained from the experience of the spinning mill.

If the cylinder clothing and the card flats clothing are changed at the same time, the values entered for both parts have to be identical.

Changing the specified service life

The service life (production) entered can be increased or reduced at any time in the respective data mask.

After the changes the newly computed values are displayed in data screen 70.2

Reset the service life after a card flats clothing change

After a card flats change, the value has to be reset to 0 in the corresponding data screen.

Changing the service life of the card flat clothing. See *Doing a Reset of the Service Life of the Card Flat Clothing* ▶ *530*

9 Repair

This chapter contains the information about how to repair the defective machine parts.

9.1 General Information

Only approved personnel are permitted to repair the machine.

After the replacement of safety device, the function test should be done. See *Doing the Function Test of the Safety Relay ▸ 172*

WARNING

Moving machine components!

Risk of hand injury

- ▶ Do NOT touch the machine components that move.
- ▶ Before setting the main switch to position OFF, make sure that the machine is at a standstill.
- ▶ When do maintenance work and repair work, set the main switch to the position OFF and padlock the main switch.

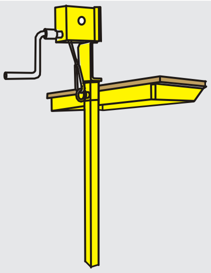
The prerequisites for the repair work are as follows:

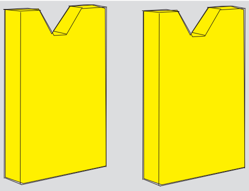
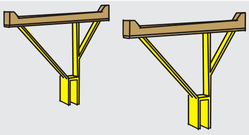
- – The main switch is set to the position OFF and the main switch is padlocked.
- – The emergency stop button is unlocked.
- – All doors and all covers are open.

9.2 Card Chute

This section contains the information about how to do the repair work in area of the card chute.

9.2.1 Replacing the Feed Trough in the Card Chute

	Assembly lift	The assembly lift is used to install and to remove the feed trough, the feed roller, and the opening roller in the card chute.

	Support for the feed trough	The support for the feed trough is used to install and to remove the feed trough in the card chute.
	Lateral supports	The lateral supports are used to install and to remove the opening roller in the card chute.

Prerequisites Make sure that the criteria are obeyed:

- ✓ An installation lift is to be used.
- ✓ A support for the feed trough is to be used.
- ✓ A lateral support is to be used.
- ✓ The opening roller is removed.
- ✓ All works are done on 2 sides of the machine.

Removing the Feed Trough in the Card Chute

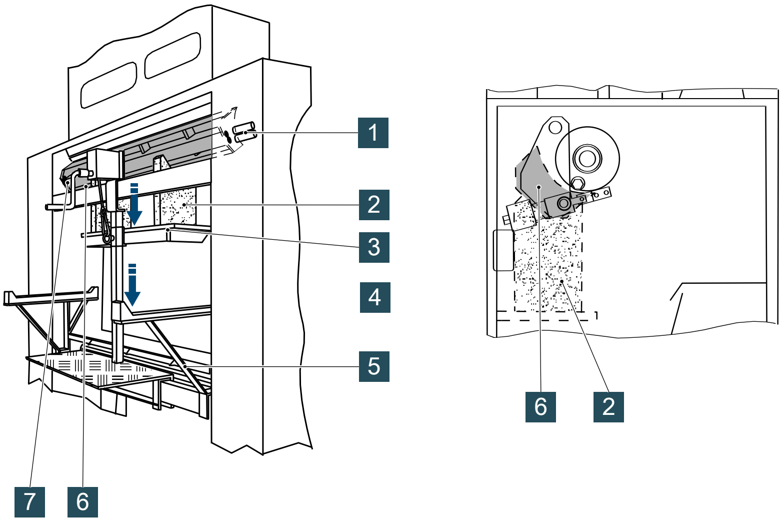


Figure 460: Feed through

1. Loosen the spring assembly tube 1.
2. Remove the spring assembly.
3. Put a thin sheet of metal element on the opening roller.
4. Install the lifting device 4.
5. Put the support 2 on the platform 3.
6. Set the platform below the feed trough 6.
7. Loosen the adjusting screws 7.
8. Remove the bolts from the inner side out of the feed trough 6.

9. Move the platform 3 down with the lifting device 4 until the feed trough 6 touches the support 5.
10. Make sure that the feed trough 6 does not jam when the feed trough 6 is lowered.

   ⇨ The feed trough of the card chute is removed.

Installing the Feed Trough in the Card Chute

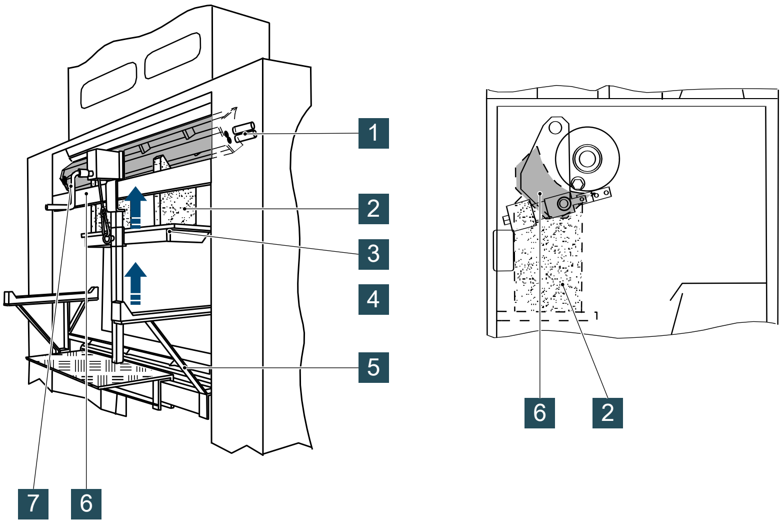


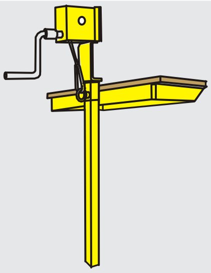
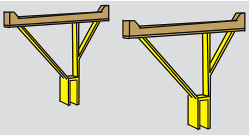
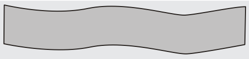
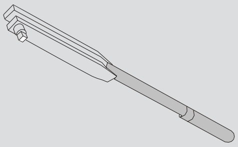
Figure 461: Feed through

1. Examine the feed trough conditions before installation.
2. Move in a thin sheet of metal element on the opening roller.
3. Install the lifting device 4.
4. Put the support 2 on the platform 3.
5. Put the feed trough 6 on the support 2.
6. Move up the platform 3 with the lifting device 4.
7. Install the feed trough 6.
8. Set the feed trough 6 at the correct height.
9. When the feed trough 6 is at the correct height, move in the bolts.
10. Install the adjusting screws 7.
11. Install the spring assembly.
12. Install the spring assembly tube 1.

   ⇨ The feed trough of the card chute is installed.

Result The feed trough in the card chute is replaced.

9.2.2 Replacing the Opening Roller

	Assembly lift	The assembly lift is used to install and to remove the feed trough, the feed roller, and the opening roller in the card chute.
	Lateral supports	The lateral supports are used to install and to remove the opening roller in the card chute.
	Plastic foil	The plastic foil is used to protect the adjacent parts when removing the opening roller.
	Torque wrench	The torque wrench is used to apply a specified tightening torque to a fastener such as a nut or a bolt.

Prerequisites Make sure that the criteria are obeyed:

- ✓ An installation lift is to be used.
- ✓ A lateral support is to be used.
- ✓ A pedestal is to be used.
- ✓ A plastic foil is to be used.
- ✓ A pull-off device is to be used.

NOTICE

The opening roller cannot move freely!

Material damage

▶ Do NOT tilt the opening roller when lowering and lifting.

Removing the Opening Roller

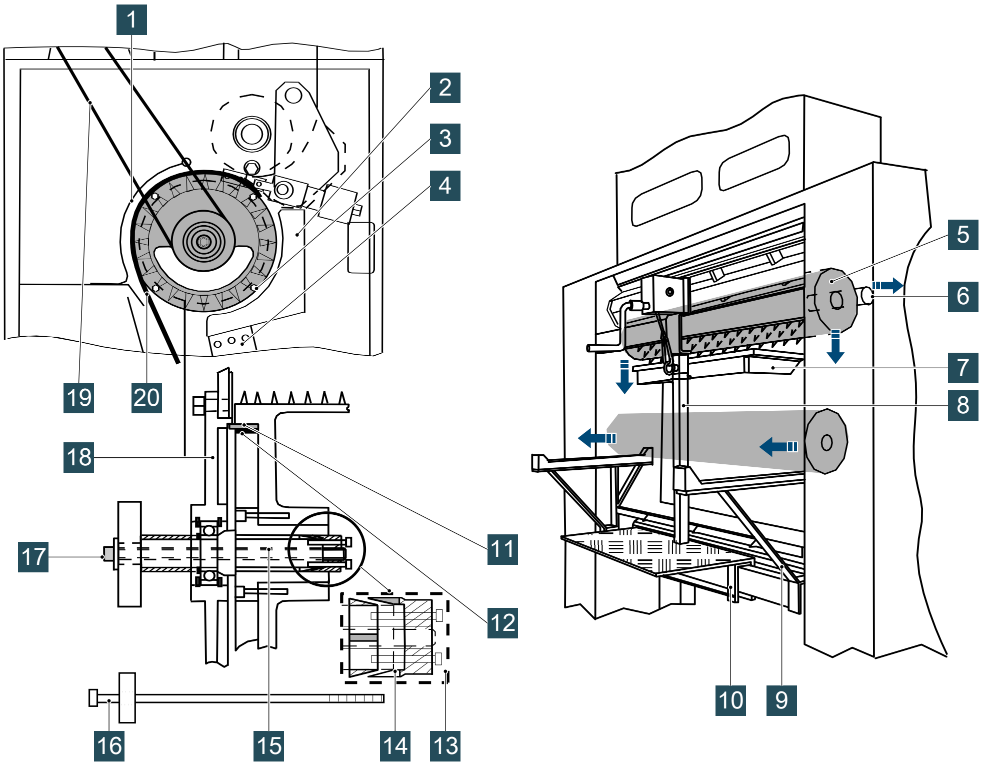


Figure 462: Opening roller

1. Remove the drive belt 19.
2. Remove the cover 1.
3. Remove the guide plate 2 and front card chute wall 4.
4. Pull the 2 plastic foils 20 and to prevent damage to the needles.
5. Remove the tensioning element 11 and the felt seal 12.
6. Remove the screws 3.
7. Install the pedestal 10.
8. Install the lifting device 8.
9. Install the carrier 9.
10. Move the platform 7 of the lifting device 8 and below the opening roller 10.
11. Loosen the screws 16.
12. Tap on the screw head to release the tensioning element 13.
13. Remove the screws of the bearing flanges 18.
14. Remove the shaft journals 9 and 16 together with the bearing flanges 12.
15. Move the platform 7 down, with lifting device, until opening roller touches the support 19.
16. Remove the lifting device 8.

17. Move the opening roller forward.
18. Move the tube through the holes in the opening roller 10.
19. Move the opening roller 10 away from the assembly crane.
20. Follow the below procedure if the shaft journal does not loosen.
21. Loosen the screw 17.
22. Install complete the pull-off device 16 into the M16 screw thread at the end of the shaft journal 15.
23. To remove the shaft journal 15 tap on the weight against the pull-off device 16.

    ⇨ The opening roller is removed.

Installing the Opening Roller

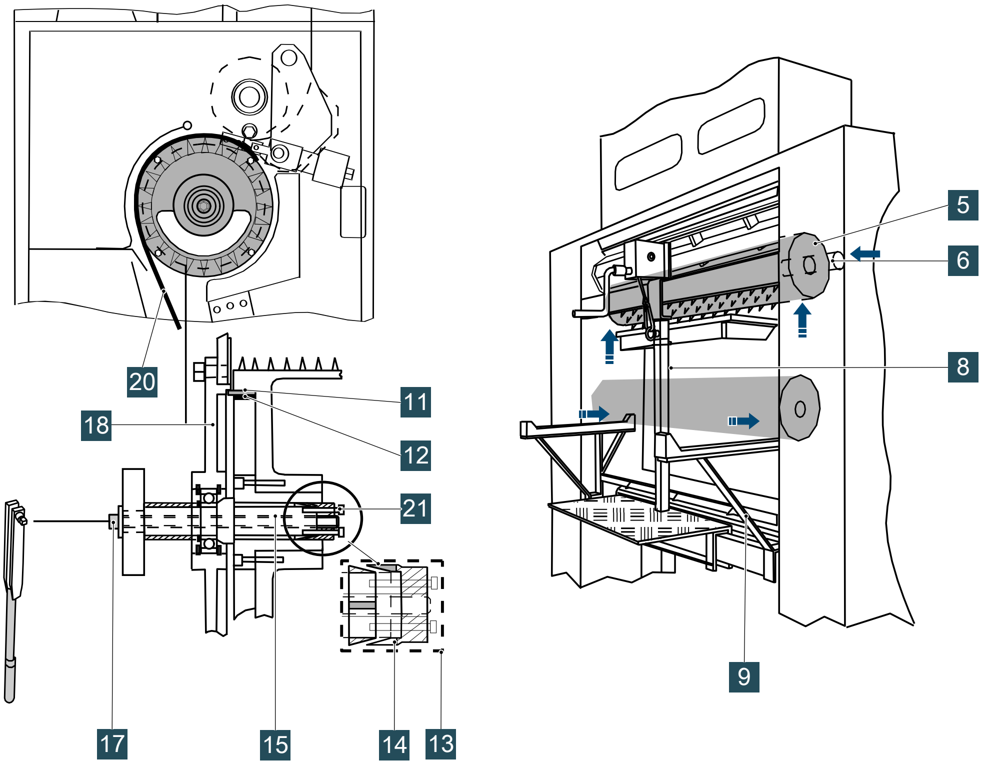


Figure 463: Opening roller

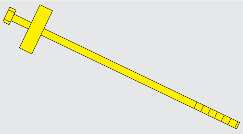
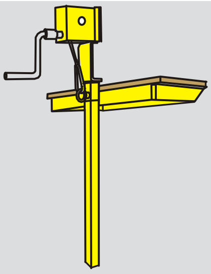
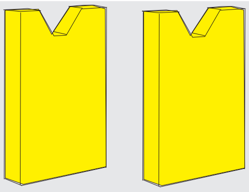
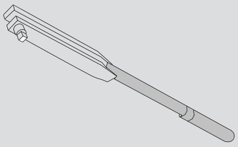
1. Apply oil on the tensioning element 6 and 8.
2. Apply the grease on the screw threads 9.
3. The slots 8 of the tensioning element are offset by 90 degrees to each other.
4. Tighten the screws 21 fully.
5. Install the lifting device 18.
6. Put the opening roller 15 on the support 19.
7. Put the belts 13 on the opening roller 15 for protection of needles.

8. Put the opening roller 15 at the correct height.
9. Move in the shaft journals 9 and 16 with the bearing flanges 12, when the opening roller is at the correct height.
10. Install the bearing flanges 12.
11. Move the opening roller 15, until it touches the shaft pins.
12. Install the seals 5.
13. Tighten the screws 10 with 130 Nm tightening torque.
    ⇨ The opening roller is installed.

Result The opening roller is replaced.

9.2.3 Replacing the Feed Roller

Orientation This section contains the information about how to replace the feed roller.

Figures	Tool Name	Function Description
	Pull-off aid	The pull-off aid is necessary for the shaft pins of the opening roller and the feed rollers.
	Assembly lift	The assembly lift is used to install and to remove the feed trough, the feed roller, and the opening roller in the card chute.
	Support for the feed trough	The support for the feed trough is used to install and to remove the feed trough in the card chute.
	Torque wrench	The torque wrench is used to apply a specified tightening torque to a fastener such as a nut or a bolt.

Prerequisites Make sure that the criteria are obeyed:
- ✓ An installation lift is to be used.
- ✓ The pull-off device is to be used.
- ✓ The support for the feed trough is to be used.
- ✓ The torque wrench is to be used.

- ✓ The opening roller is removed. See *Replacing the Opening Roller ▸ 542*
- ✓ The feed trough is removed. See *Replacing the Feed Trough in the Card Chute ▸ 539*

NOTICE

The feed roller cannot move freely!

Material damage

- ▶ Do NOT damage the sealing felt of the feed roller when remove and install the feed roller.
- ▶ To prevent the sealing felt from damage, put thin strips of sheet metal (0.10 to 0.20 mm) between the facing sides of the feed roller and the card chute wall.
- ▶ Do NOT tilt the feed roller when lowering and lifting.

Removing the Feed Roller

1. Put the supports 3 on the platform 4.

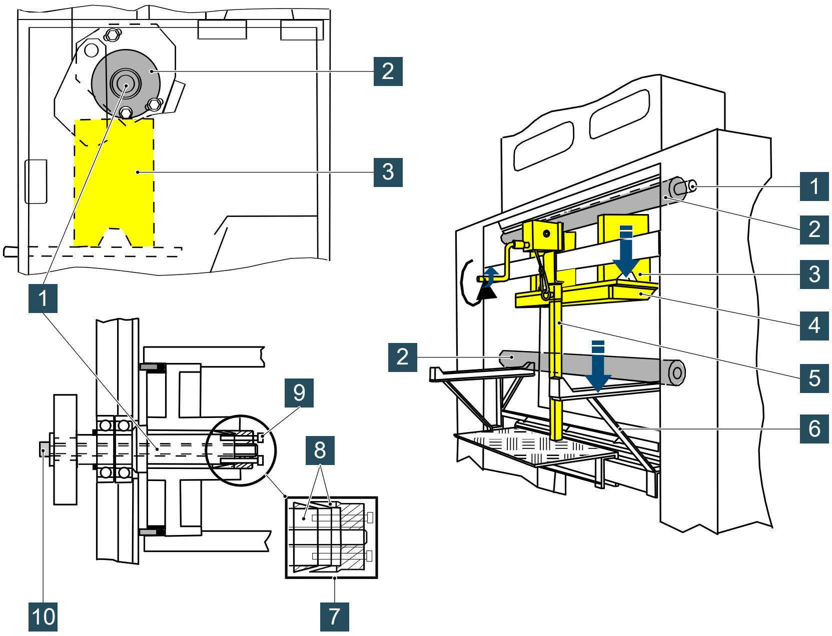


Figure 464: Removal of the feed roller

2. Move the platform 4 below the feed roller 2 until the supports 3 are on the feed roller 2.
3. Loosen the screws on the tensioning element 7 by a maximum of 1/2 turns.
4. Tap on the screw head 10.

   ⇨ The tensioning element 7 is released.
5. Remove the shaft journals 1.

6. To move the platform 4 down, use the lift device 5 until the feed roller touches the support 6.
7. Remove the screw 10.
8. Install the full pull-off device (long M16 screw with displaceable weight) into the shaft journal 1.
9. To remove the shaft journal 1, hit slowly on the weight against the pull-off device.

   ⇨ The feed roller is removed.

Installing the Feed Roller in the Card Chute

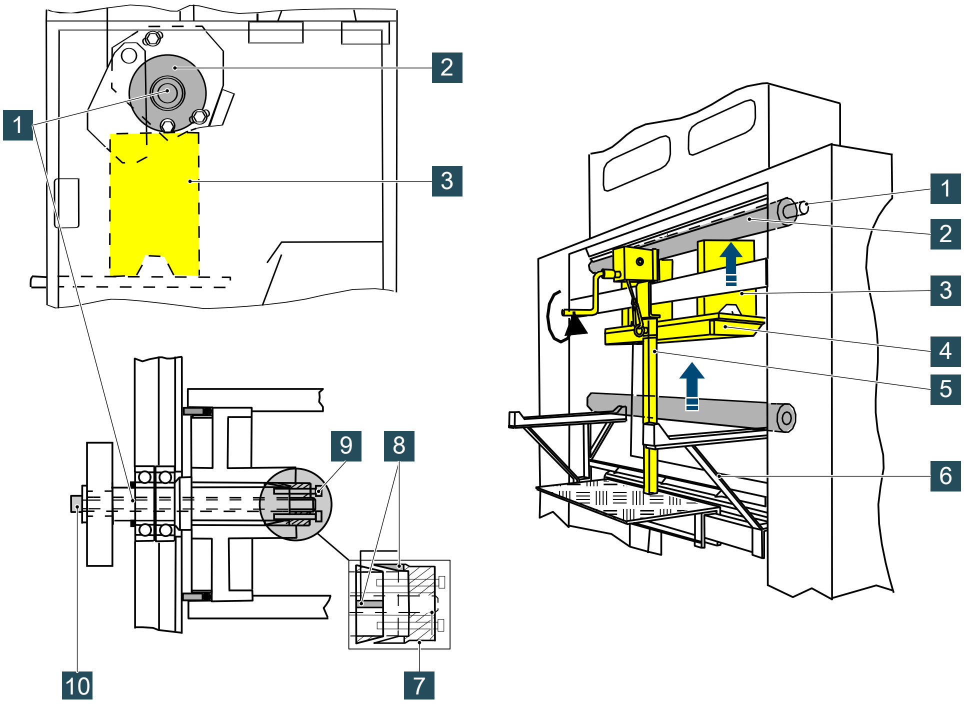


Figure 465: Installation of the feed roller

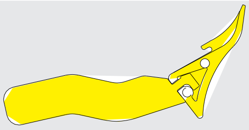
1. Clean the holes of a shaft pins and the tensioning elements 7.
2. Make sure that do not flush the solvent.
3. Apply the oil on the tensioning element 7 and 8.
4. Make sure that do not use paste.
5. Apply the grease on the screw threads 10.
6. Make sure that when tighten the screw, the tightening torque moved to the tensioning element 7.
7. Make sure that the slots 10 of the tensioning element 7 are offset by 90 degrees to each other.
8. Tighten the screws 9.
9. Install the lifting device 5.

10. Pull the feed roller 2 to the correct height.
11. Move the shaft journals 1 when the feed roller 2 is reached correct height.
12. Tighten the screws 10 with tightening torque of 130 Nm.
    ⇨ The feed roller is installed.

Result The feed roller is replaced.

9.2.4 Replacing the Cover Trim

Orientation To remove the cover trim, removal of the feed plate is necessary.

	Handle	The handle is used to install and to remove the cover trim that is below the feed roller of the licker-in.

Prerequisites Make sure that the criteria are obeyed:

✓ A handle is to be used.

Removing the Feed Plate

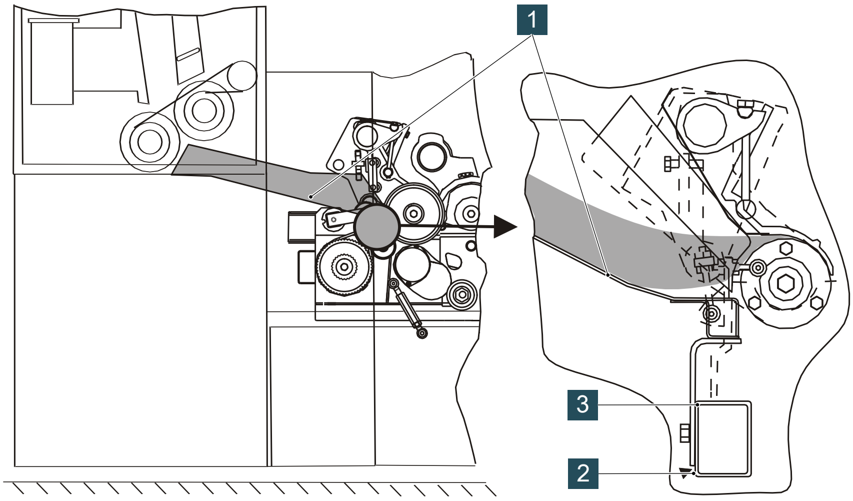


Figure 466: Feed plate

1. Remove the feed plate 1.
2. To align the cover correctly at the time of installation, put a mark on the position 2 on the holder 3.
3. Remove the holder 3.
4. Make sure to align the holder 3 to the mark again at the time of installation.

Removing the Cover Trim

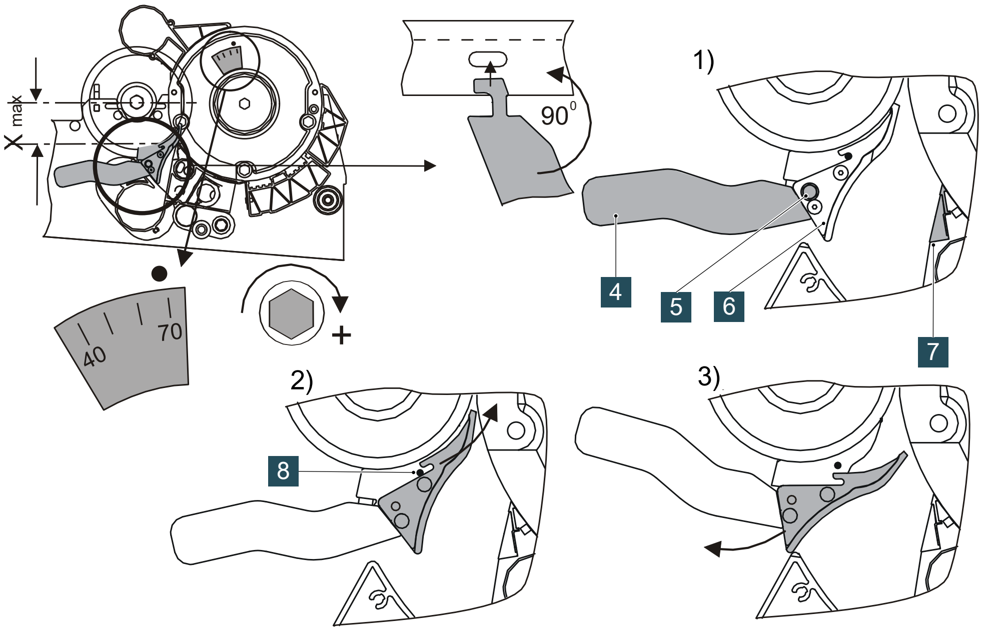


Figure 467: Mote knife and the licker-in

1. Put the mote knives 7 on the licker-in at the lowest position.
2. Attach the handle 4 in the recess on the 2 sides of the cover trim 6.
3. Turn the handle through 90° in the counterclockwise direction.
   ⇨ The handle becomes damaged if the handle is turned in the opposite direction.
4. Remove the screws 5 on the 2 sides.
5. Move the cover trim 6 parallel in the direction of the licker-in until the pins 8 do not move the side plates.
6. Remove the cover trim 6.
   ⇨ The cover trim 6 is removed.

Installing the Cover Trim

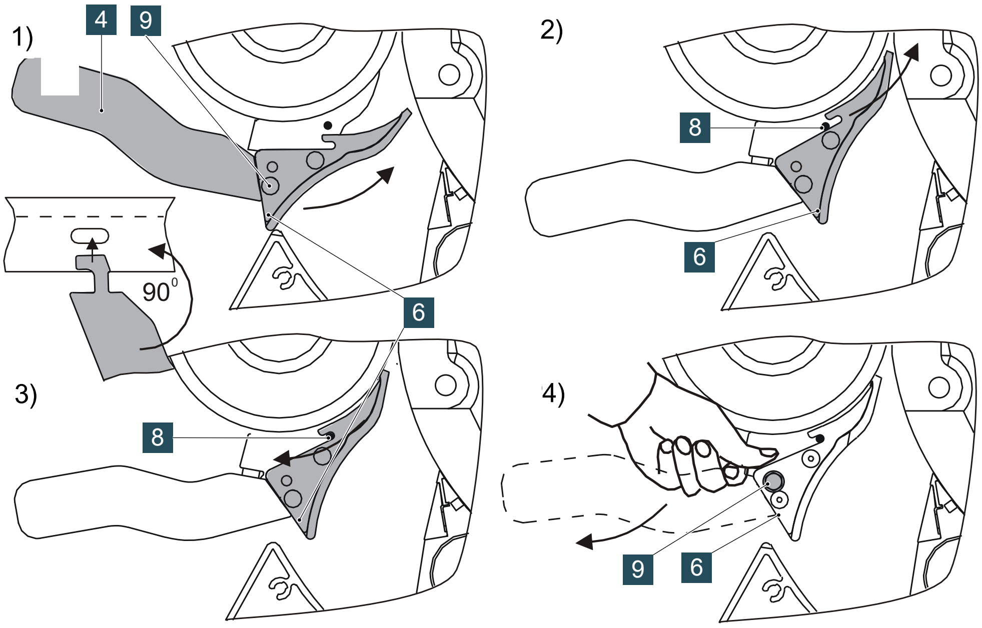


Figure 468: Cover trim below the feed roller

1. Make sure that the full licker-in unit is removed.
2. Attach the handle 4 in the recess on the 2 sides of the cover trim 6.
3. Turn the handle 4 through 90° in the counterclockwise direction.
   ⇨ The handle becomes damaged if the handle is turned in the opposite direction.
4. Move the cover trim 6 parallel in the direction of the licker-in.
5. Move up the cover trim 6 and above the pins 8.
6. Pull the cover trim 6 until the pins 8 come to initial position on the 2 sides of the recess.
7. Attach the screws 9.
8. Push the ends of the cover trim 6 down.
9. Tighten the screws 9 with the maximum tightening torque of 4 Nm.
   ⇨ The cover trim is installed.

Installing the Feed Plate

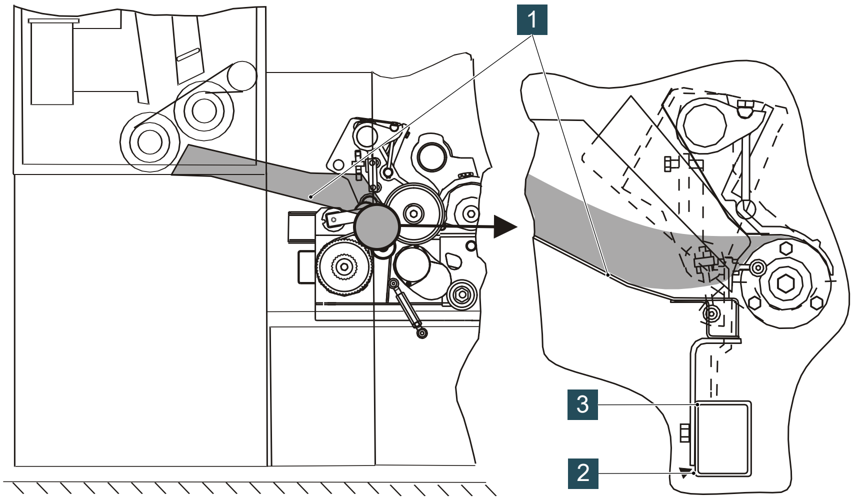


Figure 469: Feed plate

1. Install the holder 3.
2. Monitor the mark on the position 2.
3. Install the feed plate 1.

   ⇨ The feed plate 1 is installed.

Result The cover trim is replaced.

9.2.5 Applying Tension to the Chain

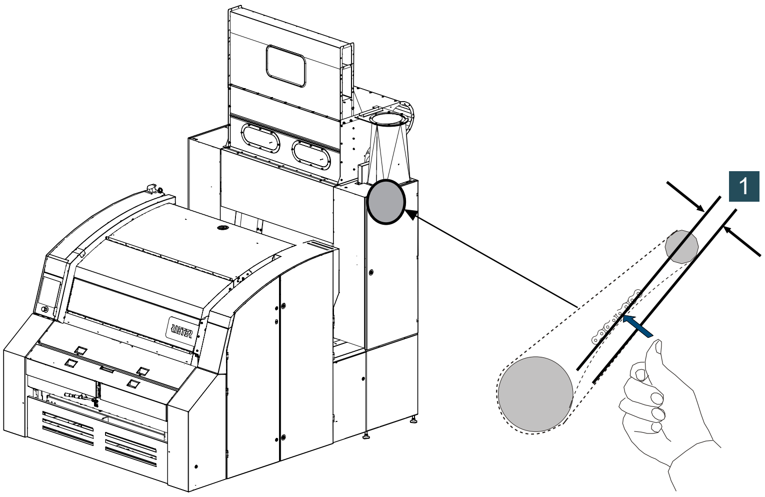


Figure 470: Tightening the chain

1. Move the feed roller motor until the chain tension is correct.
2. Measure the deflection 1 of the chain.
3. Make sure that the deflection is not more than 3.0 mm.

4. Make sure that the chain is not be tightened too loosely or too tightly.

Result The tension is applied to the chain.

9.2.6 Replacing the Needle Bars

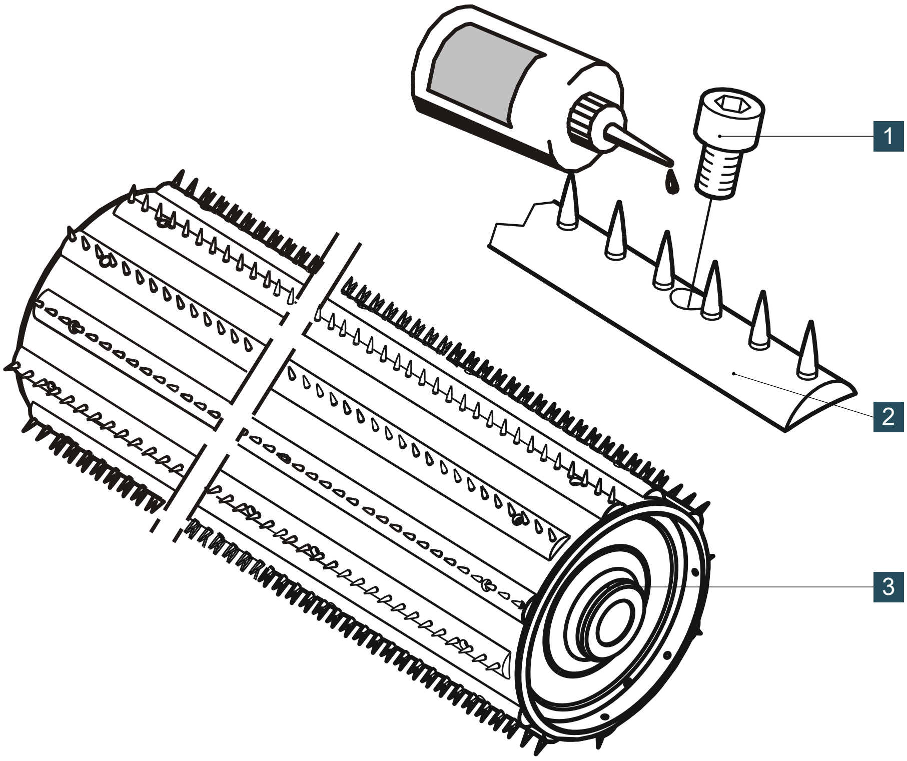


Figure 471: Needle bar assembly

Prerequisites Make sure that the criteria are obeyed:

- ✓ Adhesive LOCTITE 243 is to be used.
- ✓ Silicone is to be used.

Removing the Needle Bars

1. Remove the screws 1.
2. Remove the needle bars 2 from the opening roller 3.
   ⇨ The needle bars are removed.

Installing the Needle Bars

1. Install the needle bars 2 on the opening roller 3 with the screws M6*16 1.
2. Apply the adhesive LOCTITE 243 on the screws threads.
3. Install the screws 1 from the center of the needle bars 2 with the tightening torque of 10 Nm.

4. Seal the small distance between the needle bars 2 and the opening roller 3 with silicone.
5. Make sure that there are no fibers hanging at the openings.

   ⇨ The needle bars are installed.

Result The needle bars are replaced.

9.2.7 Replacing the Delivery Rollers

Orientation This section contains the information about how to replace the delivery rollers in the card chute.

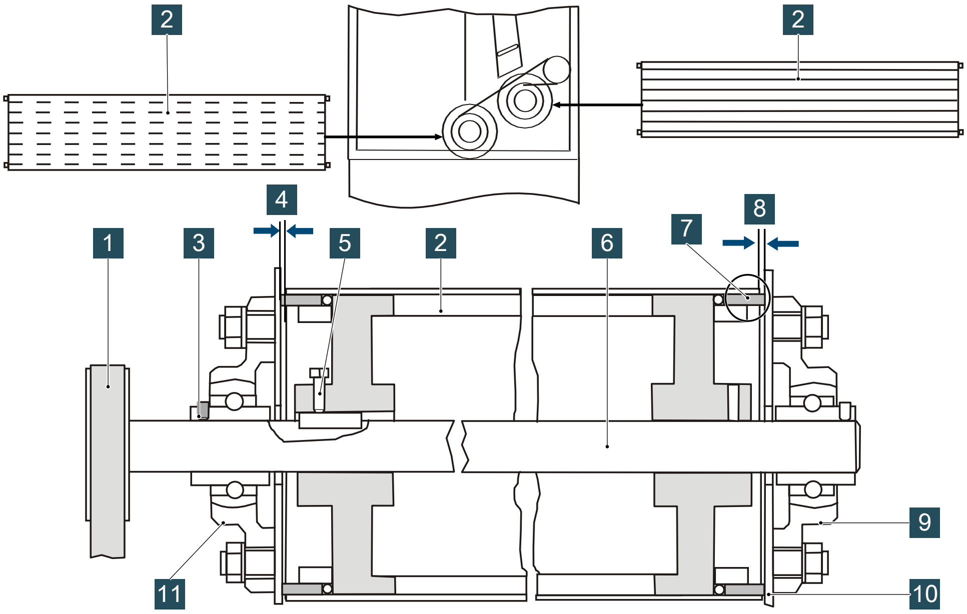


Figure 472: Delivery rollers

Prerequisites Make sure that the criteria are obeyed:

- ✓ Wooden blocks are used as a support for the safe position of the delivery rollers.
- ✓ A lifting device is not to be used to remove the delivery rollers.

Removing the Delivery Rollers

1. Remove the toothed-belt pulley 1.
2. Loosen the stud bolts 3.
3. Remove the flange bearings 9 and 11.
4. Loosen the screw 5.
5. Make sure that no screw is installed on the opposite side at the loose bearing.
6. Remove the drive shaft 6 from the delivery roller 2.

   ⇨ The delivery rollers are removed from the card chute.

Installing the Delivery Rollers

1. Install the seals 7.
2. Put the delivery rollers 2 into the card chute.
3. Make sure that the delivery rollers 2 move easily into the card chute.
4. Make sure that the installed seals 7 are in the correct position and not damaged.
5. If necessary , put thin metal shims between the front side of the delivery rollers 2 and the card chute wall 10.
6. Apply the assembly paste on the drive shaft 6.
7. Install the drive shaft 6.
8. Tighten the flange bearing 9 on the right side of the machine without the screws 3.
9. Align the delivery rollers 2 horizontally.
10. Move the drive shaft 6 until the drive shaft 6 aligns with the flange bearing 9 on the outer side.
11. Make sure that the distance 4 and the distance 8 are the same.
    ⇨ The delivery rollers 2 are aligned laterally.
12. Tighten the screws 5.
13. Install the flange bearing 11.
14. Tighten the stud bolts 3.
15. Examine again if the delivery rollers 2 are correctly adjusted laterally.
16. Align the toothed-belt pulley 1 correctly with the drive pulley.
    ⇨ The delivery rollers are installed in the card chute.

Result The delivery rollers in the card chute are replaced.

9.3 Licker-in Unit

This section contains the information about how to repair the licker-in unit.

9.3.1 Replacing the Feed Trough

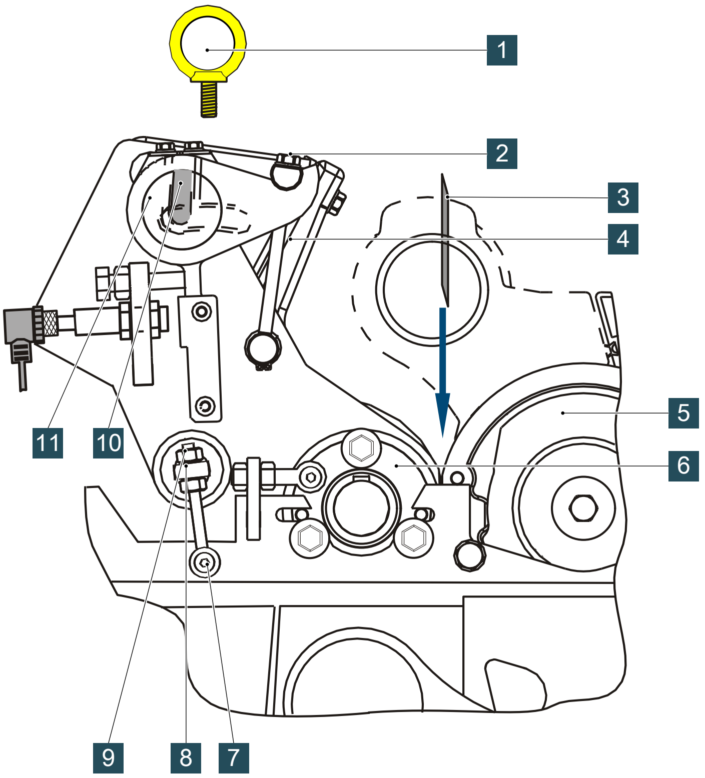
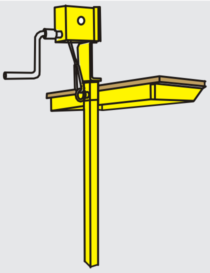


Figure 473: Feed trough

	Assembly lift	The assembly lift is used to install and to remove the feed trough, the feed roller, and the opening roller in the card chute.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The licker-in unit is removed.
- ✓ An assembly lift is to be used.
- ✓ All works are done on the 2 sides of the machine.
- ✓ Safety the feed trough before the procedure.

Removing the Feed Trough

1. To prevent damage to the licker-in 5, put a thin metal sheet 3 between the feed roller 6 and the licker-in 5.
2. Loosen the screw 2.

   ⇨ The clamping lever 11 release the tension from the torsion rods 10 in the feed trough 4.

3. Remove the torsion rods 10.
4. Install the eyebolts 1.
5. To remove the feed trough 4 with the assembly crane, align the feed trough 4 correctly.
6. Loosen the nuts 9.
7. Remove the screws 7.
8. Pull out the bearing journal 8.
9. Lift the feed trough 4 with the assembly crane.

   ⇨ The feed trough is removed.

Installing the Feed Trough

1. To prevent damage to the licker-in 5, put a thin metal sheet 3 between the feed roller 6 and the licker-in 5.
2. Lift the feed trough 4 with the assembly lift.
3. Install the bearing journal 8.
4. Install the adjusting spindle with the screws 7.
5. Install the torsion rods 10.
6. Put the torsion rods 10 into the guides 12.

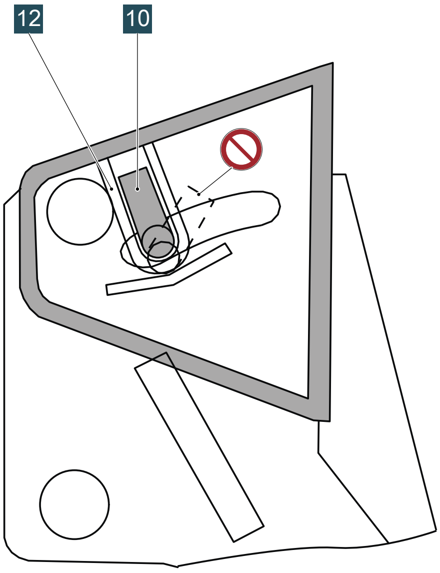


Figure 474: Torsion rods in the guides

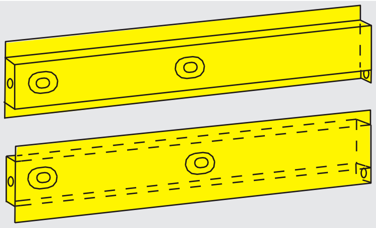
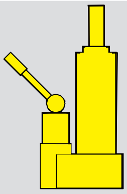
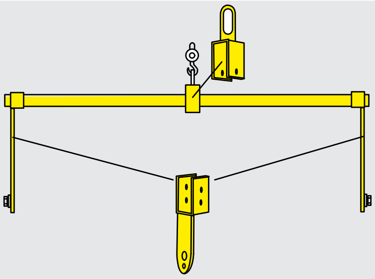
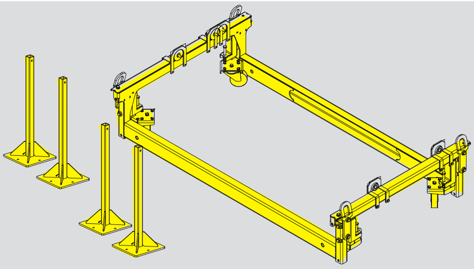
7. Set the feed trough load. See *Setting the Feed Trough Load* ▸ *236*

   ⇨ The feed trough is installed.

Result The feed trough is replaced.

9.3.2 Replacing the Licker-In Unit

Orientation This section contains the information about how to replace the licker-in unit.

	Guide rails
	Hydraulic pump
	Lifting device
	Transport trolley

Prerequisites Make sure that the criteria are obeyed:

- ✓ The guide rails are to be used.
- ✓ A hydraulic pump is to be used.
- ✓ Lifting device is to be used.
- ✓ A transport trolley is to be used.
- ✓ The licker-in unit is pushed onto a given frame for transportation to the workshop.
- ✓ The connected motors and sensors are monitored when removing the licker-in unit.
- ✓ The cables are attached with blind plugs for easy disconnection.

Removing the Licker-in Unit

1. Disconnect all the connections from the suction tubes 4.

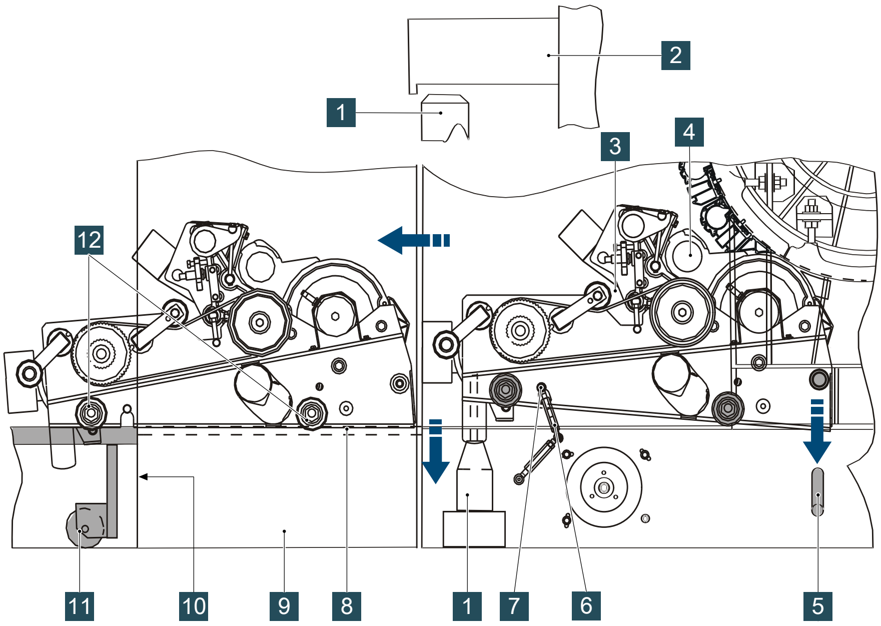
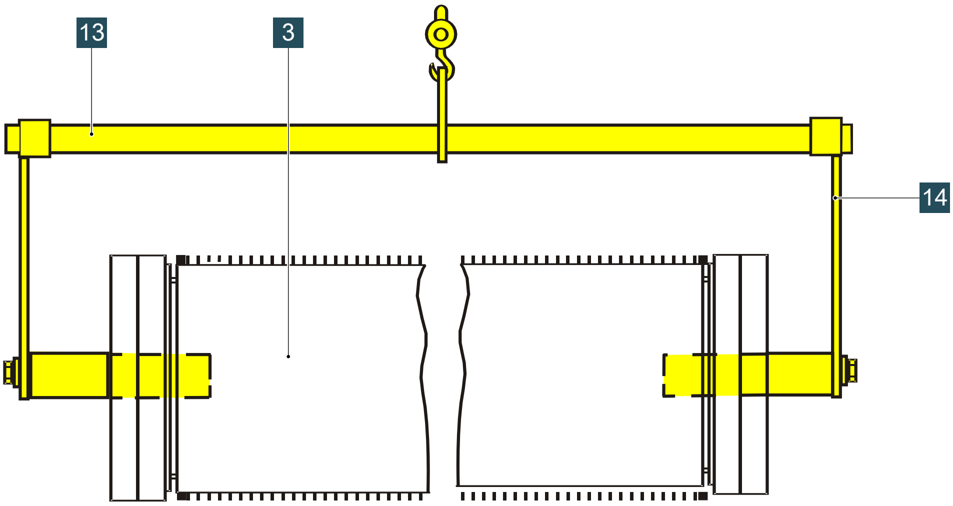


Figure 475: Licker-in unit

2. Disengage the blow-in device.
3. Disconnect the cables of the licker-in drive.
4. Disconnect the cables from the measuring device at the feed trough.
5. Disconnect the cables from the proximity switch at the licker-in.
6. Set the cables down to prevent the cables from damage when the licker-in unit 3 is moved out.
7. Lift the licker-in unit 3 out of the assembly using a lifting device 13 and the straps 14.



1. Remove the toothed belt of the delivery roller of the card chute 9.
2. Remove the batt feed channel between the card chute 9 and the card.

3. Install the guide rails 8 in the card chute 9.
4. Put the transport trolley 11 behind the card chute 9.
5. Align the transport trolley 11 to the same height as the guide rails 8 at the position 10 in the card chute 9.
6. Put the hydraulic pump 1 accurately below the bracket 2.
7. Extend the hydraulic pump 1 until it is some millimeters below the bracket 2.
8. Turn the spindles 6 counterclockwise on the 2 sides.

   ⇨ The licker-in unit 3 moves down until the bracket 2 stays on the hydraulic pump 1.
9. Remove the dowel screws 7.
10. Move away the spindles 6.
11. Move down the licker-in unit 3 with the hydraulic pump 1 until the 2 transport rollers 12 attach to the machine frame.
12. Remove the lock bolts 5 from the holes.
13. Push the licker-in unit carefully to the transport trolley 11.

   ⇨ The licker-in unit is removed.

Installing the Licker-in Unit

1. Push the licker-in unit 3 from the transport trolley 11 through the guide rails 8 to the machine frame.
2. Put the hydraulic pump 1 below the bracket 2.
3. Lift the licker-in unit 3 with the hydraulic pump 1.
4. Make sure the holes for lock bolts 5 in the licker-in unit 3 and the machine frame are lined up.
5. Install the lock bolts 5 lubricated with assembly paste into the holes by hand.
6. If the lock bolts 5 are hard to install, adjust the transport rollers 12 with the installed screws of the transport rollers 12.
7. Apply the assembly paste on the dowel screws 7.
8. Install all the removed parts.
9. Adjust the licker-in to the cylinder with the spindle 6.
10. Install the dowel screws 7.
11. Remove the guide rails 8 in the card chute 9.

   ⇨ The licker-in unit is installed.

Result The licker-in unit is replaced.

9.3.3 Installing the Mote Knife at the First Licker-In

Orientation This installing procedure is applicable only for the machine with 3 Licker-in

1. Move the mote knife 1 to the middle of the carrier.

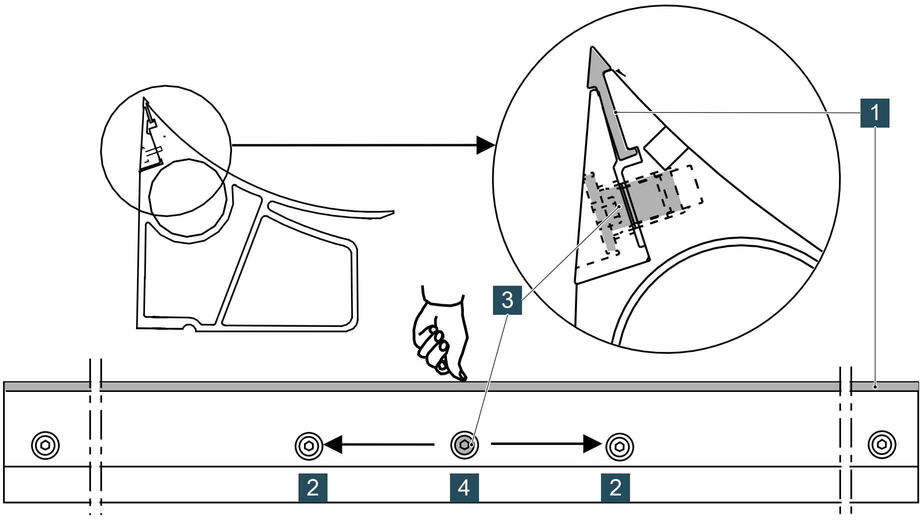


Figure 476: Mote knife on the first licker-in

2. Make sure that the mote knife 1 is in the correct installation position.
3. Tighten the screw 3 lightly.
4. Push the mote knife 1 at the center point 4 against the stop surface and tighten the screw 3 with a tightening torque of 4 Nm.
5. Tighten the screws 3 at the left side 2 and the right side 2 from the center point 4.

Result The mote knife is installed at the first licker-in.

9.4 Cylinder

This section contains the information about how to repair the cylinder.

9.4.1 Replacing the Cylinder Seal

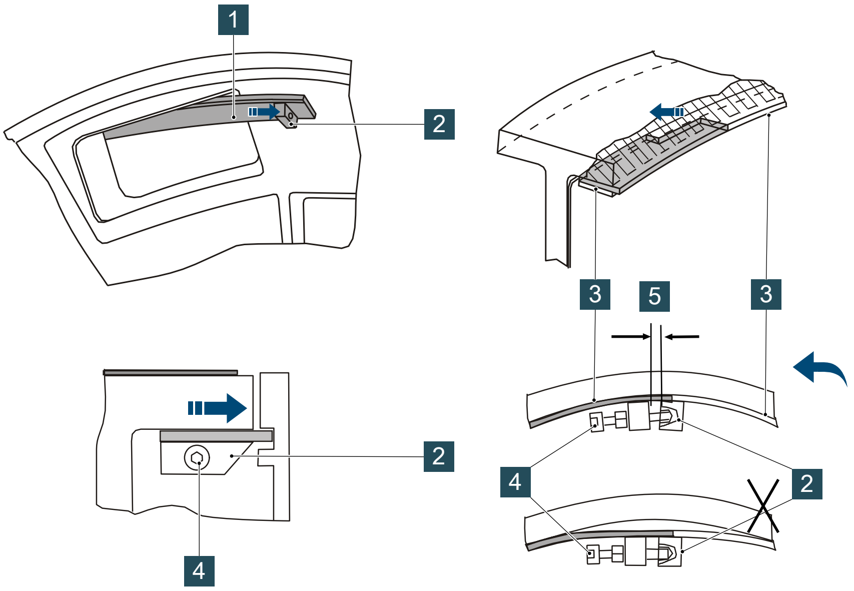


Figure 477: Cylinder seal

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Removing the Cylinder Seal

1. Loosen the clamp screws 4 at the lower position of the cylinder.
2. Remove the seal at the top cylinder shield.
3. Remove the cylinder seal.

   ⇨ The cylinder seal is removed.

Installing the Cylinder Seal

1. Install the sliver halves 3.
2. Monitor the turning direction of the cylinder.
3. Engage the clamp screws 4 to the related clamp pieces 2.
4. Make sure that the tension on the clamp screws 4 as tight as possible.
5. Make sure that the sliver halves must not lift off of the inner side of the cylinder.
6. Make sure that the distance 5 between the clamp pieces 2 and clamp screws 4 is 5 mm each.
7. Pull the seal 3 to the outside as far as possible.

   ⇨ The cylinder seal is installed.

Result The cylinder seal is replaced.

9.4.2 Replacing the Tongue in the Cylinder Area

NOTICE

Bond between fibers

Damage of the tongue

- Make sure that there is no fiber at the surface of the tongue.

Removing the Tongue in the Cylinder Area

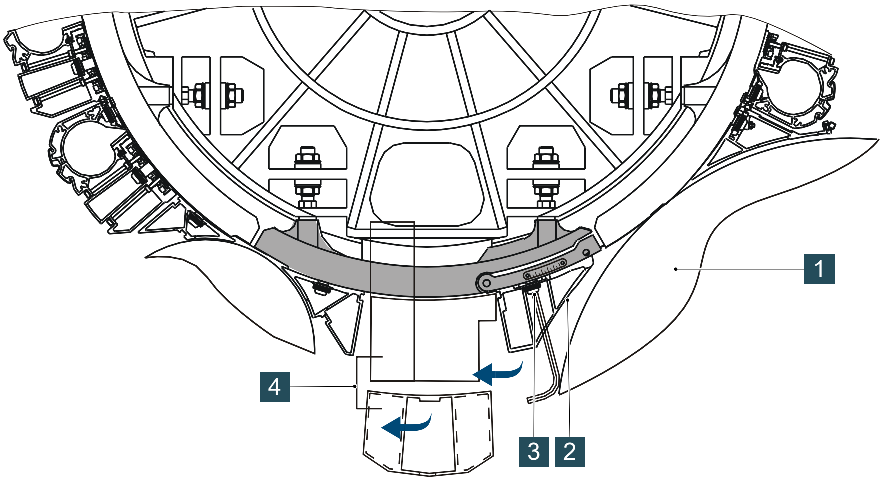


Figure 478: Tongue in the cylinder area

1. Loosen the screw 3 with a hexagonal key.
2. Push the tongue 2 far in the direction of doffer 1.
3. Tighten the screw 3 but not fully.
4. Remove the cylinder cover 4.
5. Remove the screw 3 while hold the tongue 2 tightly.
6. Remove the tongue 2 out of the machine.
7. Make sure that the seal strip connected to the tongue 2 has no damage.

   ⇨ The tongue is removed from the cylinder area.

Installing the Tongue in the Cylinder Area

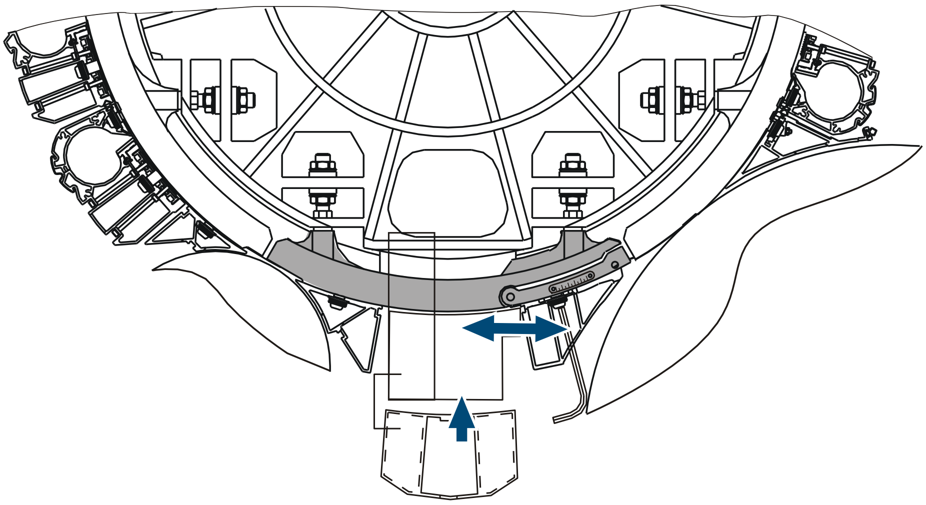


Figure 479: Tongue in the area of the cylinder

1. Lift the tongue 2 on the 2 sides at the same time.
2. Put the tongue 2 on the machine.
3. Install the screws 3.
4. Do not tighten the screws 3.
5. Make sure that the seal strip connected to the tongue 2 has no damage.
6. Push the tongue 2 in the direction of doffer 1.
7. Tighten the screws 3 but not fully.
8. Install the cylinder cover 4.
9. Move the tongue 2 near to the cylinder cover 4.

   ⇨ The tongue in the cylinder area is installed.

Result The tongue in the cylinder area is replaced.

9.4.3 Installing the Cylinder Covers

1. Adjust the adjustment segments 2.

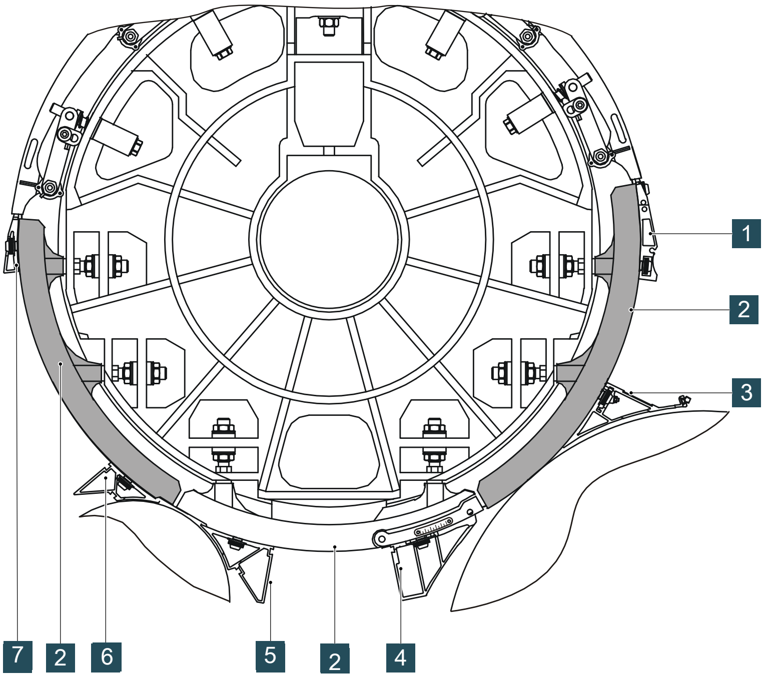


Figure 480: Cylinder covers

2. Install the cylinder covers 1, 3, 6, and 7 at the cylinder.
3. Install the tongues 4, and 5 at the cylinder.
4. Make sure that the cylinder clothing and the cylinder covers 1, 3, 6, and 7 do not touch each other.
5. Tighten the cylinder covers 1, 3, 6, and 7. See *Attaching the Cylinder Covers to the Cylinder ▸ 565*
6. Adjust the distance of the cylinder covers 1, 3, 6, and 7. See *Adjustment of the Distances ▸ 246*
7. Examine the adjustment points in the center of the cylinder. See *Adjusting the Cylinder Covers ▸ 247*

Result The cylinder covers are installed.

9.4.4 Attaching the Cylinder Covers to the Cylinder

Orientation All cylinder covers are fastened with special screws. .

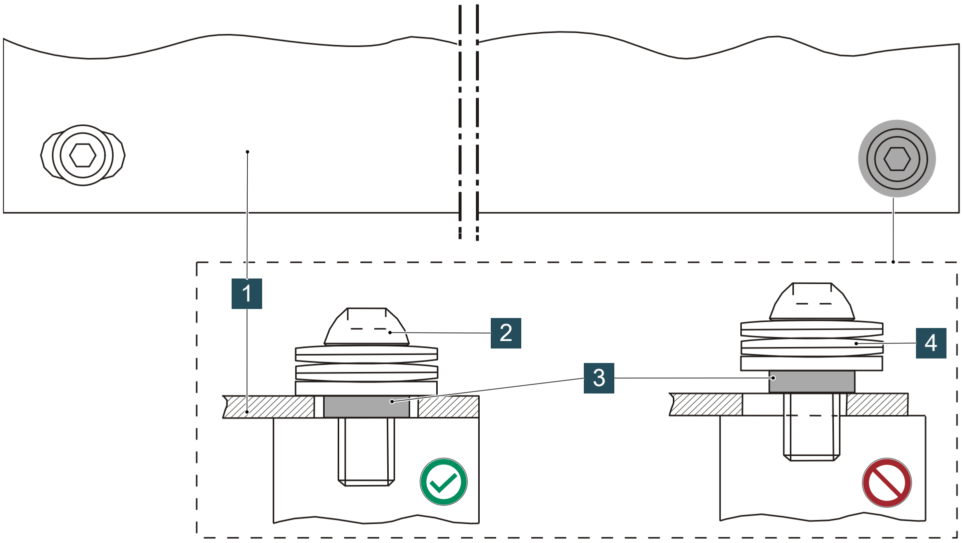


Figure 481: Adjustment of the cylinder cover

1. Put the cylinder covers carefully.
2. Make sure that the shoulder 3 of the screw 2 is in the screw hole of the cylinder cover 1.

   ⇨ If this is not the case, the spring assembly 4, which allows a certain elongation of the covers, is no longer effective.
3. Pull the cylinder cover 1 on the side with the screw hole to the outside.

   ⇨ The shoulder 3 of the screw 2 can be centered in the screw hole.
4. Install the cylinder cover 1.
5. Screw in the screws 2 for several turns.
6. Tighten the screws 2 for the slot.

Result The cylinder covers are attached to the cylinder.

9.4.5 Replacing the Carding Profiles for the Machine Version with Cotton

Orientation This section contains the information about how to replace the carding profiles.

Removing carding profiles

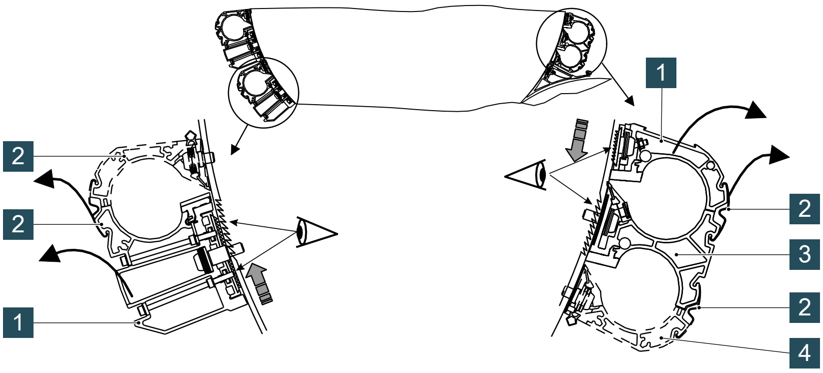


Figure 482: Carding profiles

1. Mark the carding elements so that pre-carding zone or post carding zone are not swapped out.
2. Remove the clamps 2.
3. Remove the carding elements 1.
4. Mark the knife holder 3 prior to removal to exclude the possibility of mistaking the install position.
5. Remove the knife holder 3.

   ⇨ The carding profiles are removed.

Installing the carding profiles

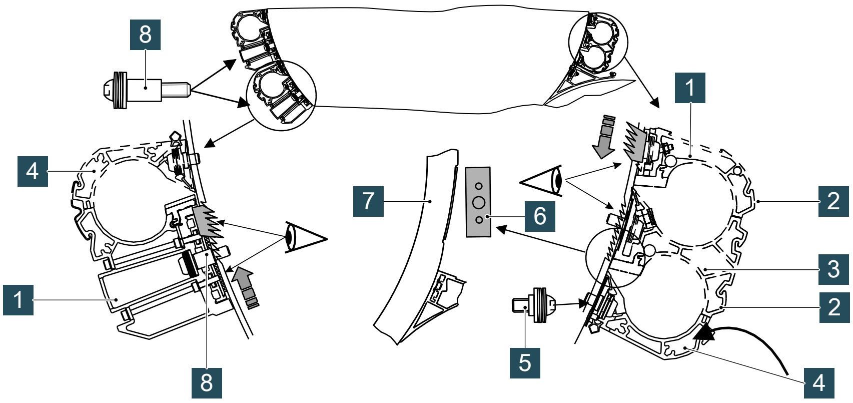


Figure 483: Carding profiles

1. Note the description for assembling the cylinder cover.
2. Align the carding elements 1 prior to installation. Take the position of the clothing teeth into account.

3. Make sure that the Install the carding element at the same location where it was removed.
4. In the post-carding zone first install the knife holder 4.
5. Make sure that the underlays 7 must be mounted on the adjustment segments 6 above the doffer.
6. Fasten the carding element 1 and the knife holders 3 and 4 with the screws 5.
7. Fasten the carding elements 1 in the pre-carding zone with the screws 8.

   ⇨ The carding profiles are installed.

Result The carding profiles are replaced.

9.4.6 Replacing the Carding Profiles for the Machine Version with Man-Made Fibers

Orientation This section contains the information about how to remove and install the carding profiles.

Removing carding profiles

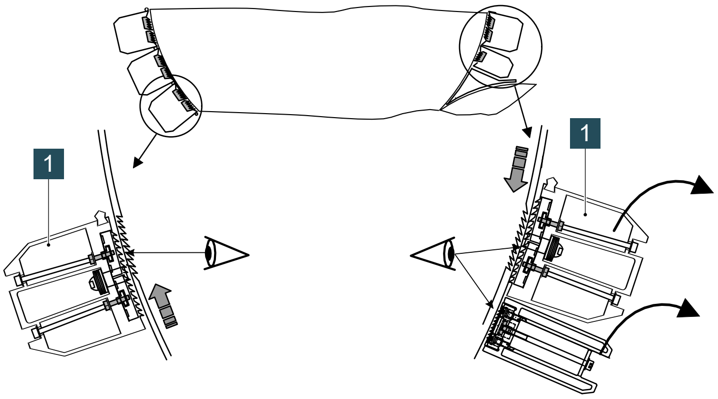


Figure 484: Removing Man-made fibers

1. Mark the carding elements.

   ⇨ The pre-carding zone and the post carding zone are not swapped out.

2. Remove the carding elements 1.

   ⇨ The carding profiles are removed.

Installing carding profiles

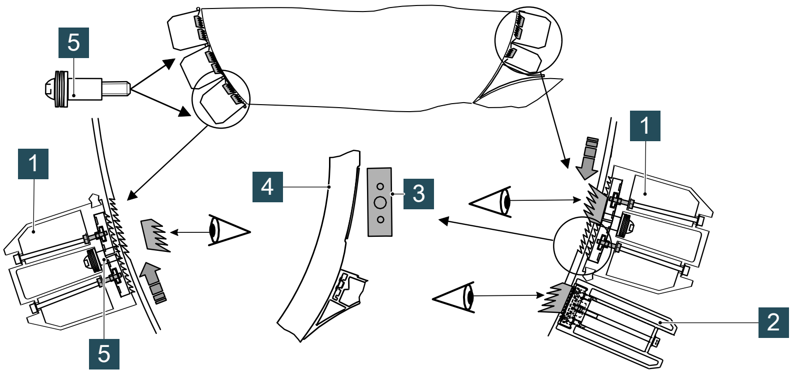


Figure 485: Installing man-made fibers

1. Note the description for assembling the cylinder cover. See *Attaching the Cylinder Covers to the Cylinder* ▶ *565*
2. Note the position of the clothing teeth.
3. Align the carding elements 1.
4. Make sure that the carding elements are installed at the same location where it was removed.
5. Install the underlays 4 on the adjustment segments 3 above the doffer.
6. In the post-carding zone, first install the carding element 2. (Pay attention to the teeth position.)
7. For the PAN (Polyacrylonitrile) and PES (Polyester), install the lower casing plate.
8. Fix the carding elements 1 with the screws 5.

   ⇨ The carding profiles are installed.

Result The carding profiles are replaced.

9.4.7 Replacing the Carding Profiles for the Machine Version with Cotton and Man-Made Fibers

Orientation This section contains the information about how to replace the carding profiles for cotton and man-made fibers, blends or swing.

Removing the carding profiles

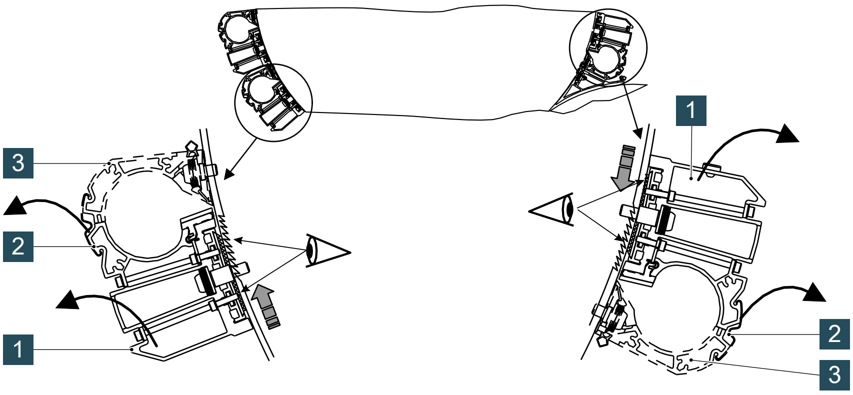


Figure 486: Removal Cotton/man-made fibers

1. Mark the carding elements so that pre-carding zone or post carding zone are not swapped out.
2. Remove the clamps 2.
3. Remove the carding elements 1.
4. Mark the knife holder 3 prior to removal to exclude the possibility of mistaking the install position.
5. Remove the knife holder 3.

⇨ The carding profiles are removed.

Installing the carding profiles

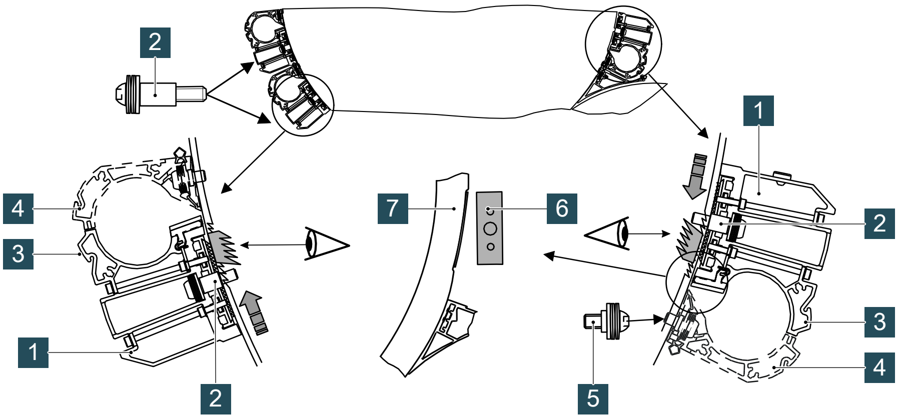


Figure 487: Installing man-made fibers

1. Note the description for assembling the cylinder cover.

2. Align the carding elements 1 prior to installation. Take the position of the clothing teeth into account.
3. Make sure that the Install the carding element 1 at the same location where it was removed.
4. In the post-carding zone first install the knife holder 4.
5. Make sure that the Install the underlays 6 on the adjustment segments 7 above the doffer.
6. Fasten the carding elements 1 and the knife holders 4 with the screws 5 and 2.
7. Install the underlays 1 for the carding profile 6 on the adjustment segments 7 above the doffer.
8. Install the lower casing plate.
9. Fasten the carding elements 1 in the pre-carding zone with the screws.

   ⇨ The carding profiles are installed.

Result The carding profiles for cotton and man-made fibers are replaced.

9.4.8 Replacing the Carding Elements

Orientation This section contains the information about how to replace the carding elements in the pre-carding zone, post-carding zone, and the doffer area.

Removing the Carding Elements (Pre-Carding Zone and Post-Carding Zone)

1. Remove the supports with the carding elements.
2. Remove the carding profiles. See *Replacing the Carding Profiles for the Machine Version with Cotton ▸ 566*, or *Replacing the Carding Profiles for the Machine Version with Man-Made Fibers ▸ 567*, or *Replacing the Carding Profiles for the Machine Version with Cotton and Man-Made Fibers ▸ 569*
3. Loosen all screws 1 of the carding elements 2 by 1 to 2 turns.

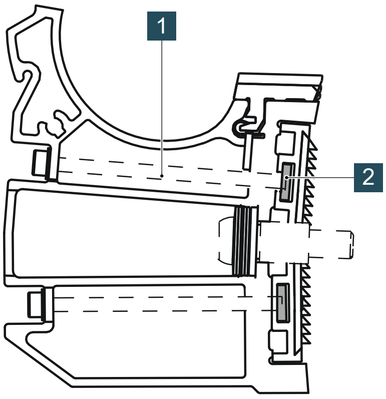


Figure 488: Carding elements (pre-carding zone)

4. Pull out the carding elements 2 from the side.
5. Loosen the nuts 4 and the screws 3 of the carding elements 5 by 1 to 2 turns.

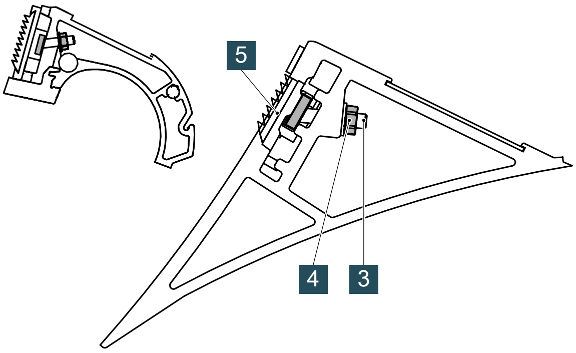


Figure 489: Carding elements (post-carding zone)

6. Remove the carding elements 5 laterally.
   ⇨ The carding elements are removed.

Installing the Carding Elements (Pre-Carding Zone and Post-Carding Zone)

1. Insert the carding element 2 laterally.

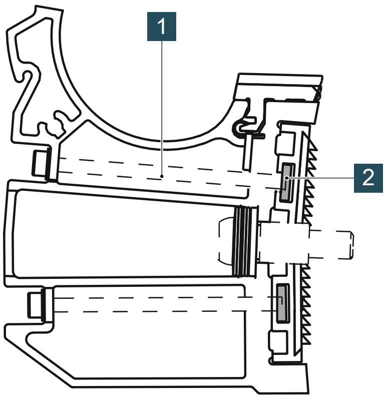


Figure 490: Carding elements (pre-carding zone)

2. Tighten screws 1 with the tightening torque of 3 Nm.
3. Insert the carding element 5 laterally.

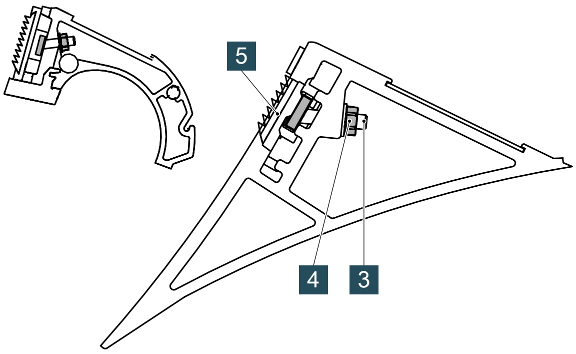


Figure 491: Carding elements (post-carding zone)

4. Carefully screw in the screws 3 until they are in line on the support.
5. Turn the screws 3 back by 1 turn.
6. Tighten the nuts 4 with the tightening torque of 1 Nm.

   ⇨ The carding elements are installed.

Installing the Carding Elements in the Doffer Area

1. Insert the carding elements 7 laterally.

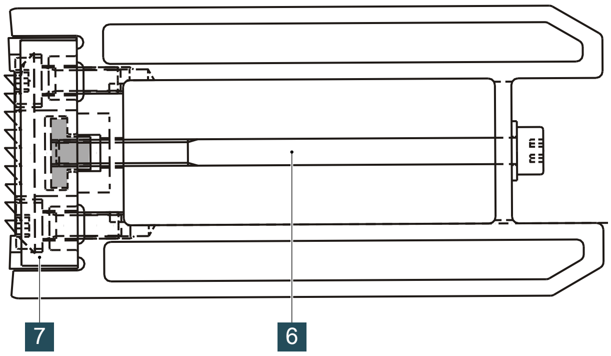


Figure 492: Carding element in the area of the doffer

2. Tighten screws 6 with the tightening torque of 3 Nm.

   ⇨ The carding elements in the doffer area are installed.

Doing the Check of the Carding Elements

1. Adjust the carding profiles relative to the cylinder clothing (pre-carding zone, cotton). See *Adjusting the Carding Profiles* ▸ *250*
2. Adjust the carding profile in the vicinity of the doffer (man-made fibers). See *Adjusting the Carding Profile in the Doffer Area* ▸ *252*

   ⇨ The check of the carding elements is done.

Result The carding elements are replaced.

9.4.9 Installing the Mote Knife

Orientation Installation of the mote knife in the pre-carding zone is described. An identical procedure is used for installation in the post-carding zone.

1. Move the mote knife 3 to the stop 4.

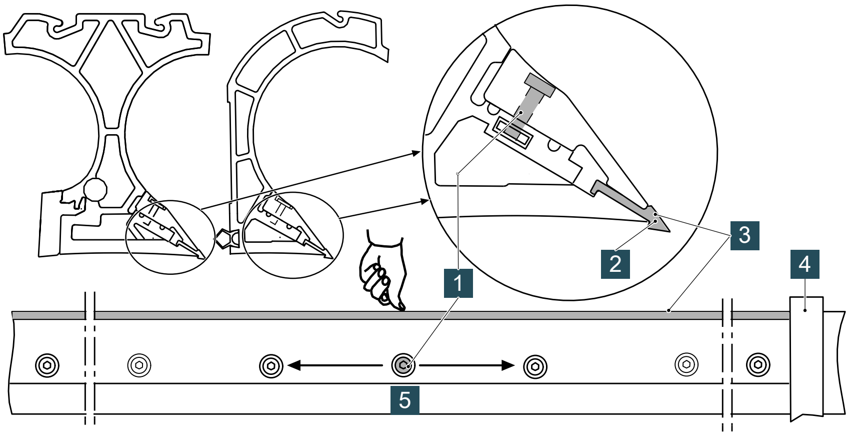


Figure 493: Installing Moto knife

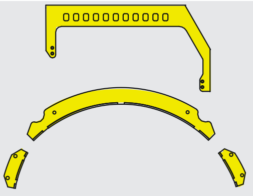
2. Press the mote knife 3 against the stop surface 2 from the middle position 5.
3. At the same time tighten the screw 1 with the tightening torque of 4 Nm.
4. Tighten all screws 1 at the left and right side of the middle position 5 in the same manner.
5. Adjust the mote knife in the pre-carding zone and post-carding zone. See *Adjusting the Mote Knife in the Pre-Carding Zone ▸ 253* and *Adjusting the Mote Knife in the Post-Carding Zone ▸ 254*

Result The mote knife is installed.

9.5 Card Flats

This section contains the information about how to do the repair work in area of the card flats.

9.5.1 Replacing the Card Flat Unit

	Support for the card flats	The support for the card flats is used for the installation work and the removal work of the card flats.

Prerequisites Make sure that the criteria are obeyed:

✓ The supports for the card flats are to be used.

Doing the Preparation Work

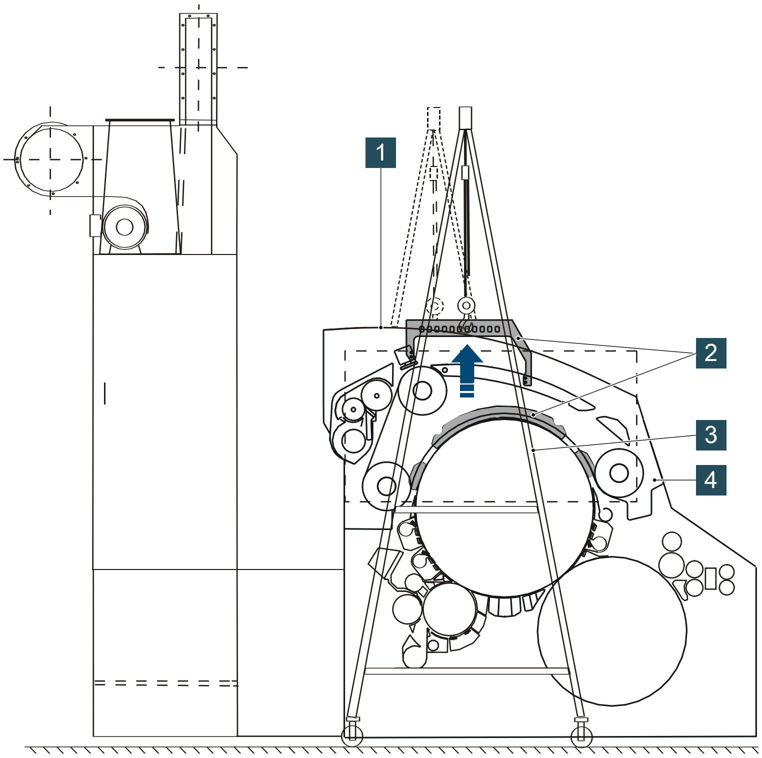


Figure 494: Removal of the card flat unit

1. Remove the proximity switches of the card flats at the left side of the machine.
2. Remove the proximity switches of the suction monitoring at the left side of the machine.
3. Remove all attached parts that are necessary for suction and the pneumatic lines of the card flat unit 4.
4. Remove the red attached pieces on the 2 sides of the machines.
5. Open the cover 1.

Attaching the Support

Units	Left side Support	Right side Support
6 + 8 + 7	10	6
6 + 7	12	8
6 + 8	7	5
6	12	10/11

1. Attach the support 2 onto the 2 sides of the card flat unit 4.

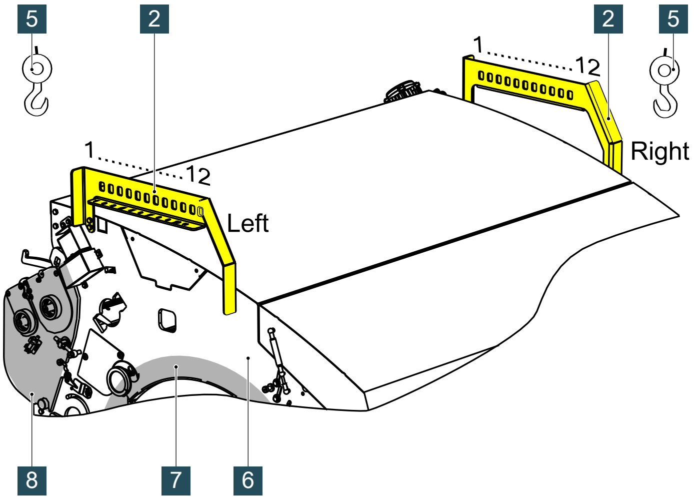


Figure 495: Attaching load to the card flats

6	Side shield of the card flat unit	7	Set of card flats
8	Cleaning unit of the card flat		

2. Refer to the above table to select the correct opening.

   ⇨ The right side opening is above the load center of gravity.

3. Attach the hook 5 to the correct opening in the support 2.

   ⇨ The load is applied horizontally.

Removing the Card Flat Unit

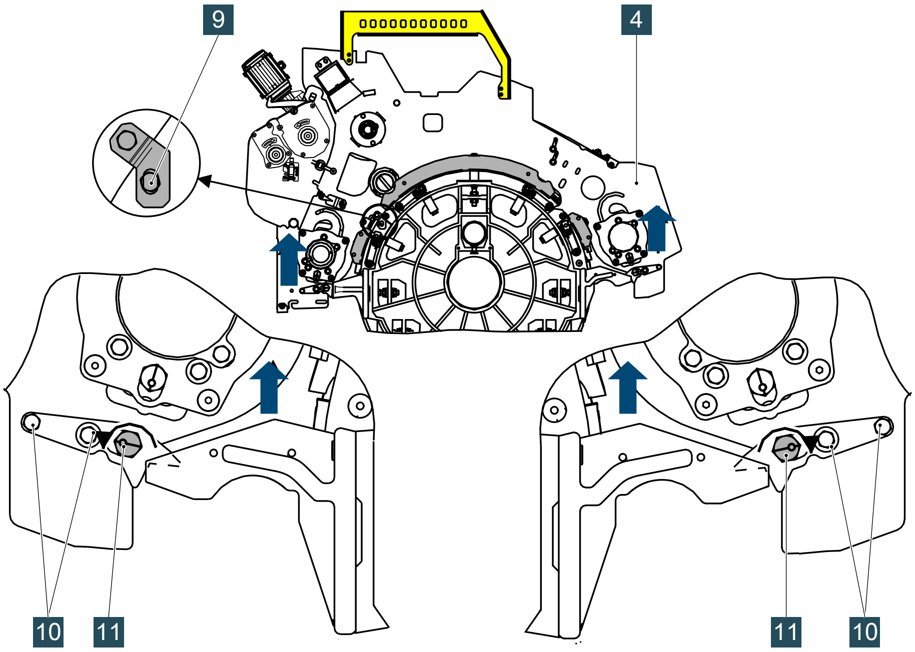


Figure 496: Removing the card flat unit with the opening

1. Remove the locking screws 9 on 2 sides of the card flat unit.

2. Loosen all screws 10.
3. Turn the eccentric 11 to 180 degrees.

   ⇨ The card flat unit 1 is lifted slightly.
4. Tighten the screws 10.
5. Lift the card flat unit 4 with the installation crane 3.
6. Remove the card flat unit 4 from the machine.

   ⇨ The card flat unit is removed.

Installing the Card Flat Unit

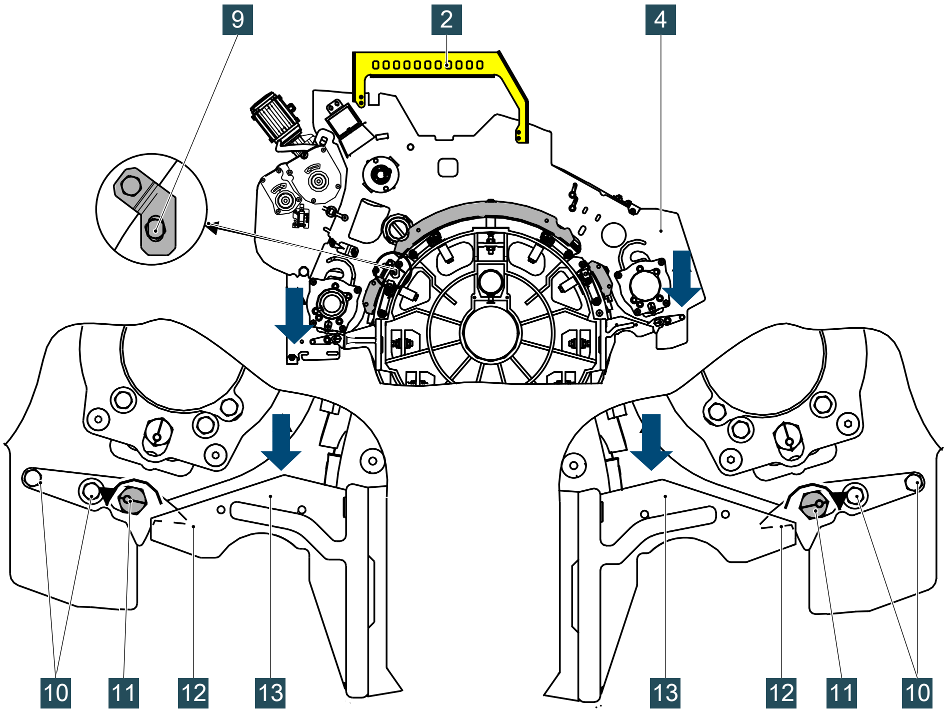


Figure 497: Installing the card flat

1. Do not loosen the screws 10.
2. Put the card flat unit 4 above the position of the installation as accurately as possible.

   ⇨ The parts are prevented from damage.
3. Lower the card flat unit 4, until lever 12 aligns with the crossbar 13.
4. Loosen the screws 10.
5. Lower the card flat unit 4 with the eccentric screw 11 until the card flat unit 4 is in final position.
6. Make sure that the eccentric screws 11 moves freely.

   ⇨ The card flat unit comes in the correct position.
7. Tighten the screws 10.

8. Install the locking screws 9 on the 2 sides of the card flat unit.
9. Install all the removed parts correctly.
10. Adjust the card flats. See *Adjusting the Card Flats* ▸ *270*
    ⇨ The card flat unit is installed.

Result The card flat unit is replaced.

9.5.2 Replacing the Lubricating Blocks of the Card Flats

1. Move back the holder 3 of the lubricating block 1.

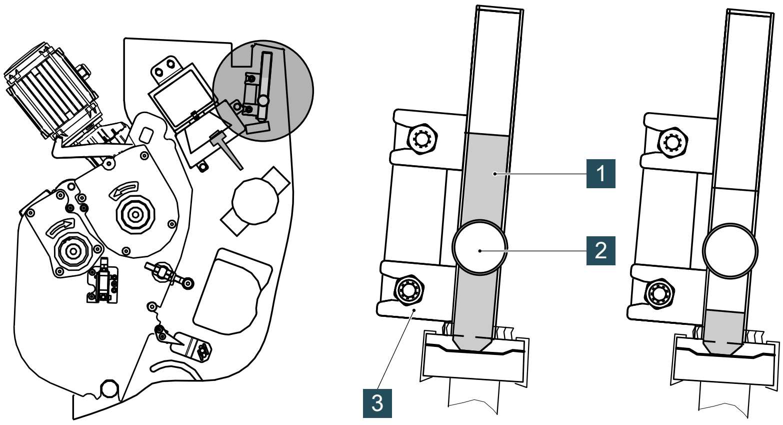


Figure 498: Lubricating Block of the card flats

2. Attach the holder 3 in correct position with the fixing screw 2.
3. Remove the holder 3.
4. Replace the lubricating block 1.
5. Install the holder 3.
6. Turn back the fixing screw 2 until the fixing screw 2 blocks.

Result The lubricating block of the card flats is replaced.

9.5.3 Card Flat Belt and Deflection Pulleys

This section contains the information about the repair work at the card flat belt and the deflection pulleys.

9.5.3.1 Examining the Deflection Pulleys

Orientation The deflection pulleys that do not turn can have a negative effect on the service life of the planetary gear of the drive unit of the card flats.

Prerequisites Make sure that the criteria are obeyed:

✓ A flashlight is to be used.

1. Move out the control cabinet at the left side of the machine.

⇨ The deflection pulleys are open for access.

2. Examine the deflection pulleys 1 are at the left side of the machine with the flashlight.

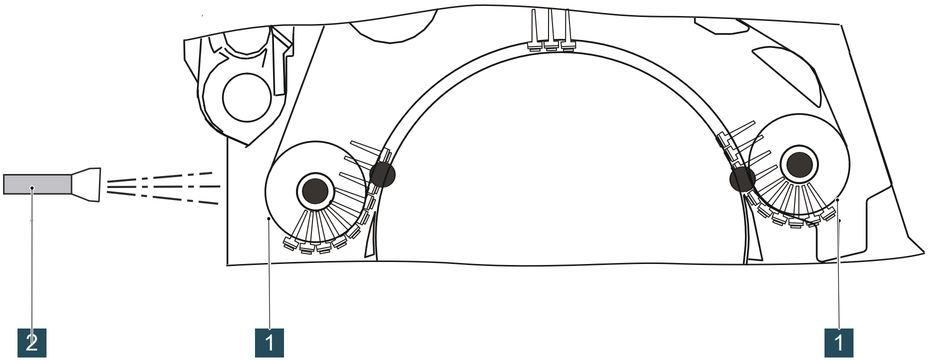


Figure 499: Deflection pulleys

3. Examine the deflection pulley 1 that are at the right side of the machine with the flashlight 2.
4. Examine if the deflection pulleys 1 at the left side and the right side turn together with the card flats.
5. If a deflection pulleys 1 does not turn correctly or does not turn, clean the related deflection pulley 1.
6. Remove the card flats. See *Replacing the Card Flats* ▸ *510*.
7. Remove the deflection pulleys 1 of the card flats. See *Removing the Deflection Pulley of the Card Flat.* ▸ *581*
8. Clean the deflection pulleys 1 until the deflection pulleys 1 turn freely again.

   ⇨ The deflection pulleys are cleaned.
9. Install the card flats.

Result The deflection pulleys are examined.

9.5.3.2 Replacing the Card Flat Belts

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

✓ A rope is to be used.

Removing the Card Flat Belts

1. Remove all card flats. See *Removing the Card Flats* ▸ *510*
2. Loosen the adjusting ring 2 and the deflection pulley 4.

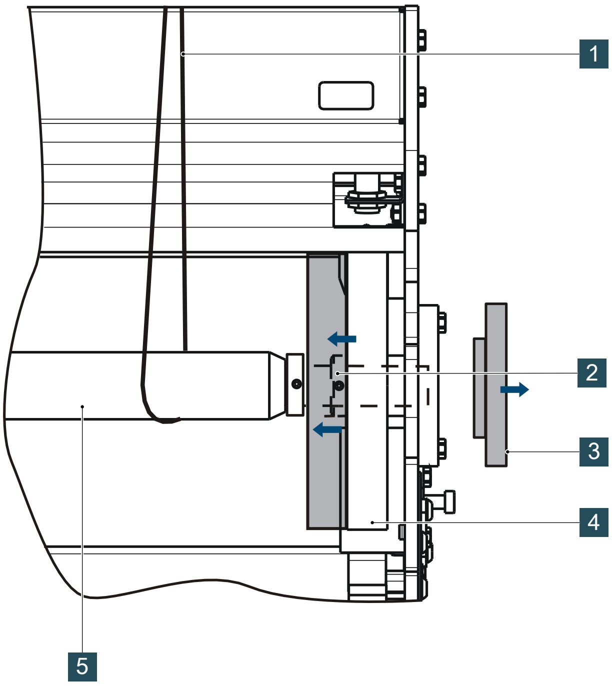


Figure 500: Removal of the bearing cover

3. Move in the adjusting ring 2 and the deflection pulley 4.
4. To hold the drive shaft 5 in the correct position, put the rope 1 around the drive shaft.
5. Remove the bearing cover 3.

   ⇨ The card flat belts are removed.

Installing the Card Flat Belts

1. See the arrows 6 on the card flat belts 7.

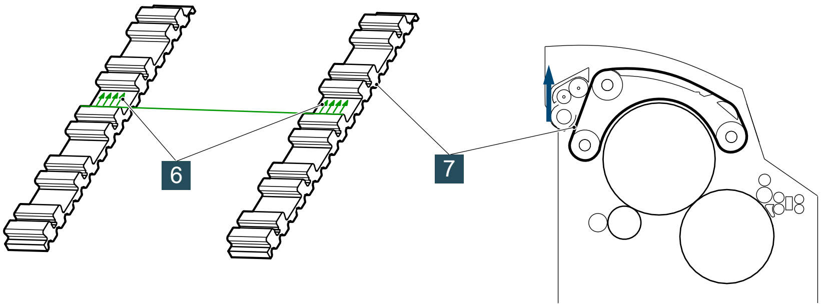


Figure 501: Arrows on the card flat belts

2. To install the card flat belts 7 correctly, obey the arrows 6 that are on the card flat belts.
3. Make sure that the arrows 6 point in the running direction of the card flat belts 7.
4. Make sure that the card flat belts operate synchronously.

5. Put in the card flat belts 7 through the opening.

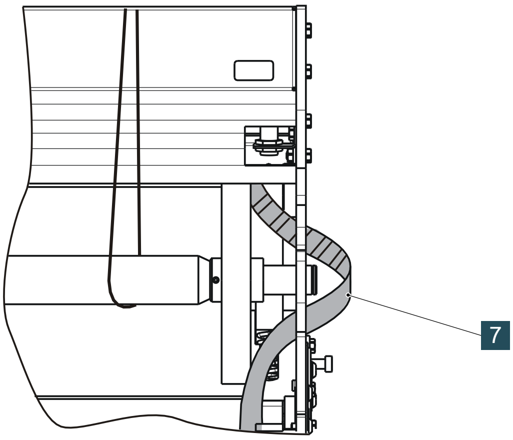


Figure 502: Card flat belt

6. Install the card flat belts 7 on the deflection pulleys.

   ⇨ The card flat belts are installed.

Result The card flat belts are replaced.

9.5.3.3 Applying Tension to the Card Flat Belt

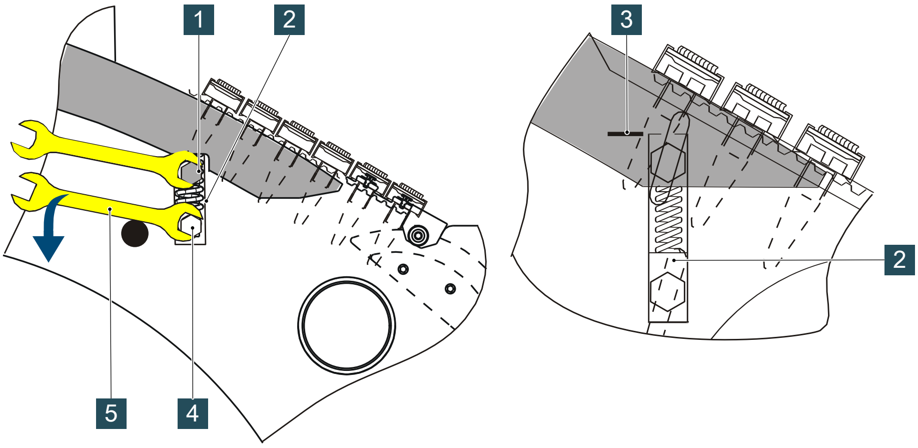


Figure 503: Card flat belt

Prerequisites Make sure that the criteria are obeyed:

✓ An open-end wrench is to be used.

1. Loosen the screws 1 and 4.

   ⇨ The clamping device 2 is in the lowest position.

2. To lift the clamping device 2, use the open-end wrench 5.
3. Make sure that the mark 3 is in line with the top edge of the clamping device 2.
4. Tighten the screw 1.

Result The tension is applied to the card flat belt.

9.5.3.4 Removing the Deflection Pulley of the Card Flats

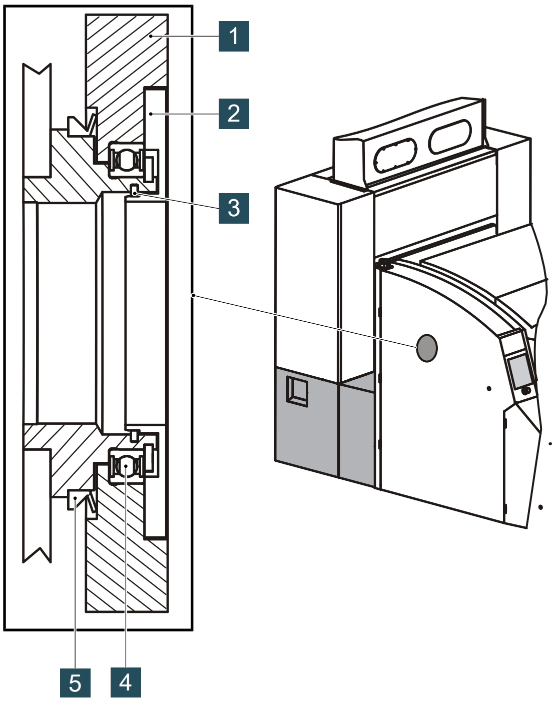


Figure 504: Deflection pulley of the card flat

Prerequisites Make sure that the criteria are obeyed:

- ✓ The card flats are removed. See *Replacing the Card Flats ▸ 510*

1. Remove the deflection pulley 1.
2. Remove the cover flange 2.
3. Clean the dirt around the ball bearing 4.
4. Remove the seals 3 and 5.
5. If the seals 3 and 5 are defective, replace the seals 3 and 5.
6. Remove the ball bearing 4.
7. If the ball bearing 4 is damaged, replace the ball bearing 4.

Result The deflection pulley of the card flats is removed.

9.5.4 Replacing the Cleaning Unit of the Card Flats

Weight of the cleaning unit	150 kg

Prerequisites Make sure that the criteria are obeyed:

- ✓ The crane and chain lifting equipment are to be used.
- ✓ The cleaning unit is adjusted after installation.

⚠ **CAUTION**

Cleaning unit falls down!

Risk of injury

▶ Make sure that the cleaning unit is tightened at the bottom.

Removing the Cleaning Unit of the Card Flats

1. Open the electric cabinet door.
2. Set position of the card flats in the test mode. See *Adjusting the Proximity Switches for the Card Flats ▸ 182*
3. Make sure that a card flat 5 is in the opening 4 and aligned to the marks 6.

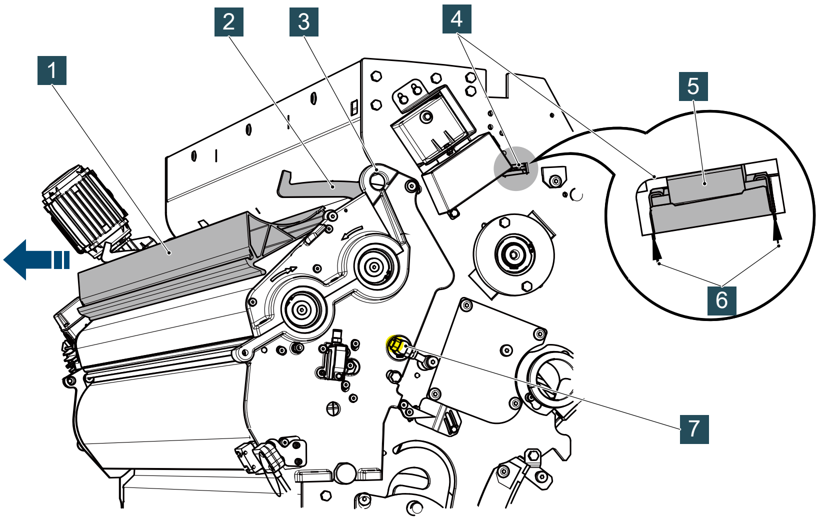


Figure 505: Cleaning unit of the card flats

4. Make sure that the card flat and clearer roller are opposite of each other.
5. Set the main switch to the position OFF. Padlock the main switch.
6. Disconnect motor connections, pneumatic air lines and suction units.
7. Remove the nuts 7 on the 2 sides of the card flat unit.
8. Open the cover 1.
9. Pull the tabs 3 in the arrow direction.
   ⇨ The cleaning unit is moves to the stop 2.
10. Attach the hooks to the taps 3 of 2 sides of the cleaning unit.

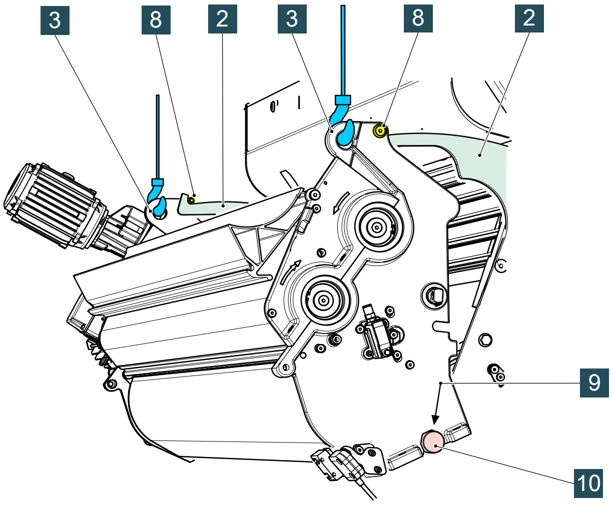


Figure 506: Cleaning unit

11. Lift the cleaning unit carefully.
12. Move the cleaning unit from the machine.
13. **CAUTION! Cleaning unit falls down! Risk of injury.** Put the cleaning unit on a workbench.
14. Fix the cleaning unit onto the substrate.
    ⇨ The cleaning unit is prevented from falling.
15. Remove the hooks from the taps 3.
    ⇨ The cleaning unit of the card flats is removed.

Installing the Cleaning Unit of the Card Flats

1. Attach the hooks to the taps 3 of 2 sides of the cleaning unit.

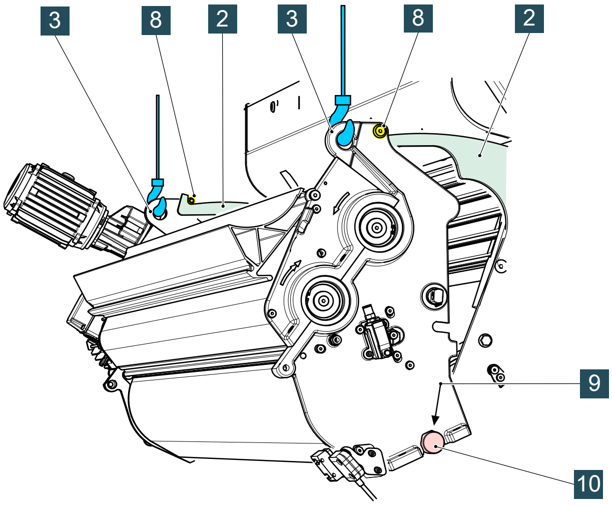


Figure 507: Cleaning unit

2. Lift the cleaning unit.

3. Move the cleaning unit to the installation position.
4. Carefully lower the cleaning unit until the opening 9 is on the bolt 10 and the bolt 8 is on the guide 2.
5. Completely lower the cleaning unit.
6. Remove the hooks from the taps 3.
7. Remove the nut 13.

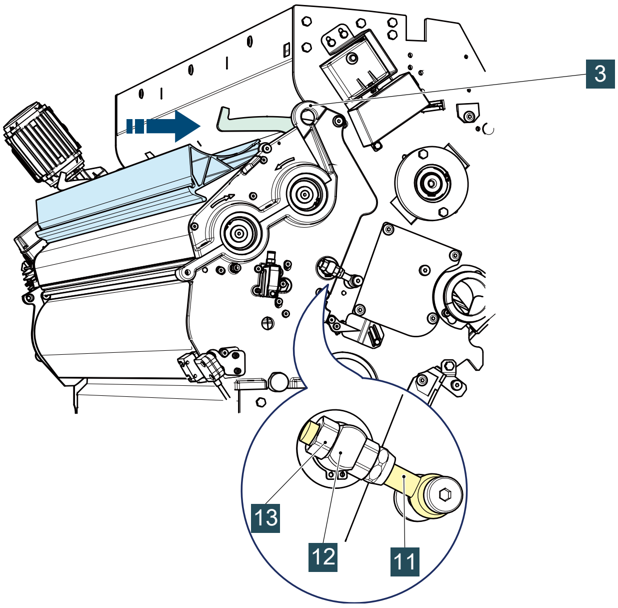


Figure 508: Installation of the cleaning unit

8. Hit on the tabs 3 in the arrow direction.
9. Extend the adjustment spindle 11 into the journals 12.
10. Install the nut 13.
    ⇨ The cleaning unit of the card flats is installed.

Result The cleaning unit of the card flats is replaced.

9.5.5 Replacing the Casing and the Motors

Weight of the gear motor 3	10 kg
Weight of the motor 7	7 kg

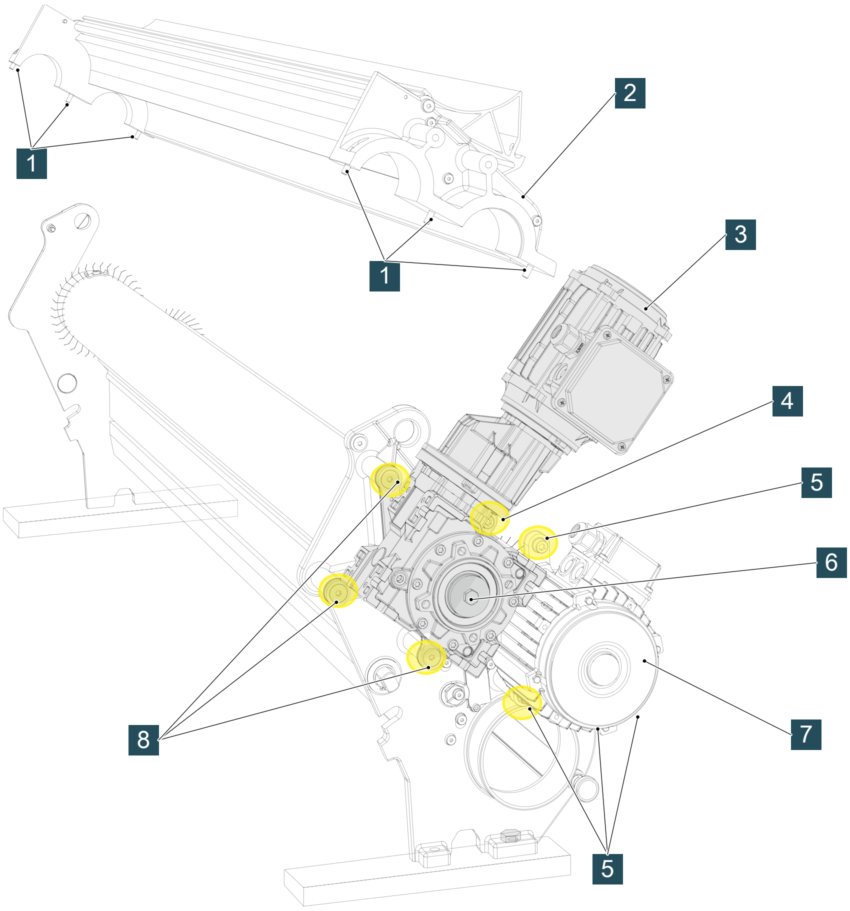


Figure 509: Casing and motors

Prerequisites Make sure that the criteria are obeyed:

✓ The clearer rollers are installed. See *Replacing the Clearer Rollers ▸ 586*

Removing the Casing and the Motors

1. Remove the screws 1.
2. Removing the casing 2.
3. Remove the 4 screws 8.
4. Move out the gear motor 3.
5. Remove the 4 screws 5.
6. Remove the motor 7.

⇨ The casing and the motors are removed.

Installing the Casing and the Motors

1. Carefully put the casing 2 on the housing.
2. Put the screws 1.
3. Install the screw 4.

4. Tighten the screws 1 tightly.
5. Put the motor 7 at the correct position.
6. Move the motor 7 into the coupling sleeve.
7. Screw in the 4 screws 5.
8. Examine the axial play of the shaft coupling on the motor 5.
9. Make sure that the axial play of the coupling sleeve is 1.5 ± 0.5 mm.
10. If the axial play is not 1.5 ± 0.5 mm, adjust the coupling end piece on the shaft.
11. Tighten the screws 5 tightly.
12. Put the gear motor 3 at the correct position.
13. Screw in the screws 8.
14. Install the screw 6.
15. Tighten the screws 8 tightly.
    ⇨ The casing and the motor are installed.

Result The casing and the motors are replace.

9.5.6 Replacing the Clearer Rollers

Weight of the clearer roller PW1	40 kg
Weight of the clearer roller PW2	20 kg

Prerequisites Make sure that the criteria are obeyed:

✓ The casing and the motors are removed. See *Replacing the Casing and the Motors ▸ 584*

✓ The chain lifting equipment is to be used.

⚠ **WARNING**

Cleaning unit can fall!

Death or dangerous injury if the cleaning unit falls on the personnel

▶ Make sure that the cleaning unit is tightened at the bottom.

Removing the Clearer Rollers

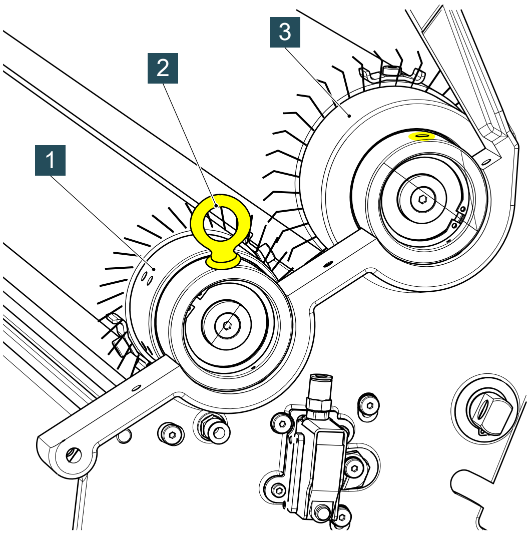


Figure 510: Clearer rollers

Prerequisites Make sure that the criteria are obeyed:

✓ The cleaning unit is removed. See *Replacing the Cleaning Unit of the Card Flats ▶ 581*

1. Tighten the eyebolt 2 on the 2 sides of the clearer roller.
2. **WARNING! Cleaning unit can fall! Death or dangerous injury if the cleaning unit falls on the personnel.** Lift the clearer roller PW1 3 with the chain lifting equipment.
3. Lift the clearer roller PW2 1 with the chain lifting equipment.

   ⇨ The clearer rollers are removed.

Installing the Clearer Roller

Orientation The procedure below is about how to install the clearer roller PW1. The procedure is the same for the clearer roller PW2.

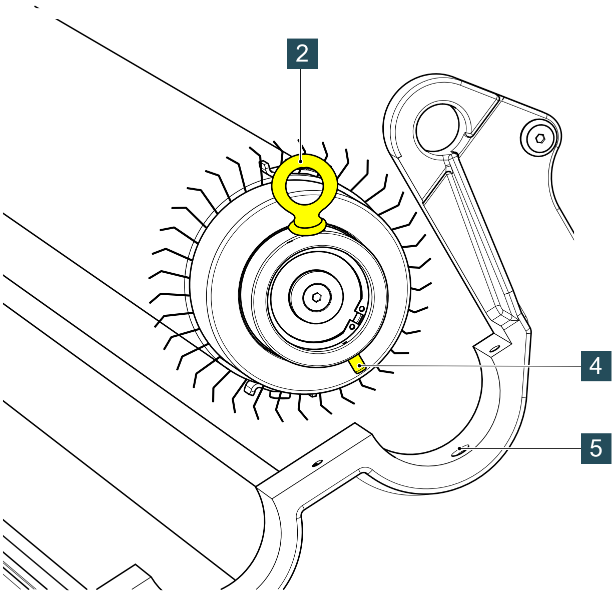


Figure 511: Clearer roller and the eyebolt

Prerequisites Make sure that the criteria are obeyed:

✓ The cleaning unit is installed. See *Replacing the Cleaning Unit of the Card Flats ▶ 581*

1. Tighten the eyebolt 2 on the 2 sides of the clearer roller.
2. **WARNING! Cleaning unit can fall! Death or dangerous injury if the cleaning unit falls on the personnel.** Lift the clearer roller PW1 into the housing.
3. Put the pin 4 into the bore 5.
4. Hit the eyebolt 2 with the plastic hammer.
   ⇨ The bearing of the clearer roller PW1 is positioned full surface into the housing.
5. Do the same for the clearer roller PW2.
   ⇨ The clearer rollers are installed.

Result The clearer rollers are replaced.

9.5.7 Adjusting the Stripping Blade to the Clearer Roller PW1

Orientation The instructions below must be done on the 2 sides of the machine.

Prerequisites Make sure that the criteria are obeyed:

✓ The clearer roller PW1 and the motor are installed.

1. Loosen the screws 2.

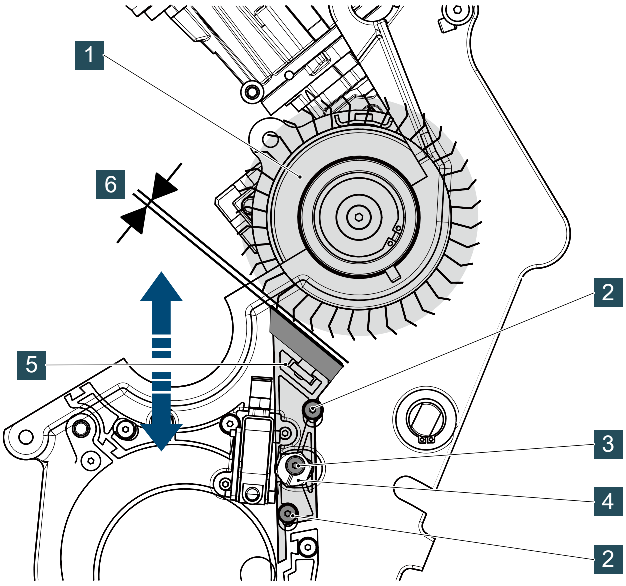


Figure 512: Blade of the clearer roller PW1

⇨ The carrier 5 with the blade can be moved in the arrow direction.

2. Loosen the screw 3.

⇨ The eccentric 4 can be turned.

3. To measure the distance 6 between the blade and the clearer roller PW1 1, use the card gauge.
4. To set the distance 6 to 0.6 mm, use the eccentric 4.
5. Tighten the screws 2.

⇨ The carrier 5 with the blade is installed in position.

6. Tighten the screw 3.

Result The stripping blade to the clearer roller PW1 is adjusted.

9.5.8 Adjusting the Stripping Blade to the Clearer Roller PW2

Orientation The instructions below must be done on the 2 sides of the machine.

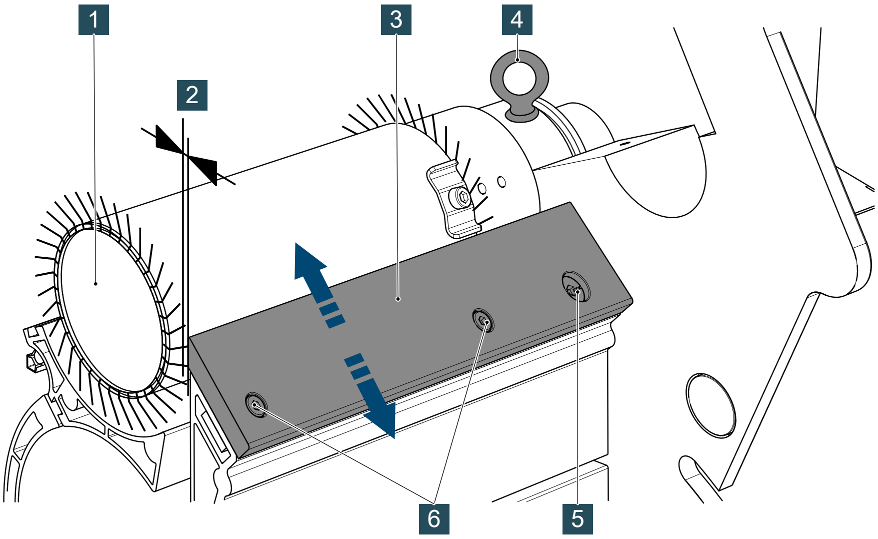


Figure 513: Clearer roller PW2

Prerequisites Make sure that the criteria are obeyed:

✓ The clearer roller PW2 is installed. See *Replacing the Clearer Rollers* ▶ *586*

1. Loosen the screws 6.

   ⇨ The blade 3 can be moved in the arrow direction.

2. To measure the distance 2 between the blade and the clearer roller PW2 1, use the card gauge.
3. To set the distance 2 to 0.8 mm, use the eccentric 5.
4. Tighten the screws 6.

   ⇨ The blade is installed in position.

5. Install the clearer roller PW1 and gear motor. See *Replacing the Clearer Rollers* ▶ *586* and *Replacing the Casing and the Motors* ▶ *584*

Result The stripping blade for clearer roller PW2 is adjusted.

9.5.9 Putting a New Clothing onto the Clearer Rollers PW1 and PW2

This section contains the information about putting a new clothing onto the clearer roller PW1. The winding up procedure of the clearer roller PW2 is same as the winding up procedure of the clearer roller PW1.

9.5.9.1 Preparing the Clothing Fillet

Orientation Always clothe the 2 clearer rollers. The winding up of the clothing of the clearer roller PW1 is described below. The winding up of clearer roller PW2 occurs in the same manner.

Prerequisites Make sure that the criteria are obeyed:

- ✓ Needle nose pliers are to be used.
- ✓ Punch pliers are to be used.
- ✓ The cleaning unit is removed.
- ✓ The clearer rollers are removed. See *Replacing the Clearer Rollers* ▸ *586*

1. Make sure to pull the needles 4 out of the clothing band 2 until the sufficient area is available for the fastening of the clamp piece 3.

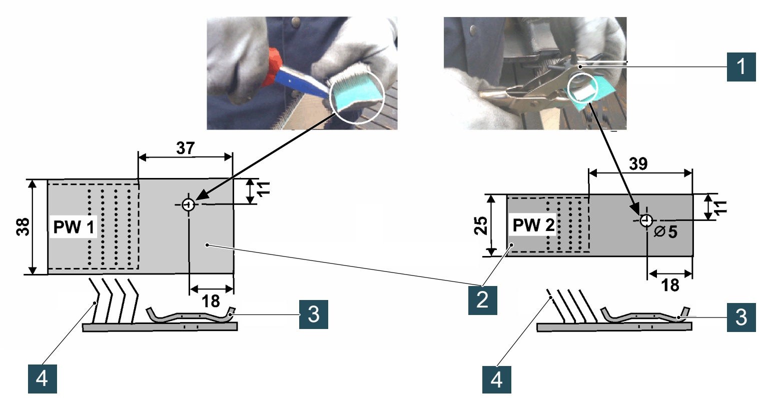


Figure 514: Preparation of the clothing band

2. To pull the needles 4 out of the clothing band 2, use the needle nose pliers.
3. Mark the position for the hole as per the drawing.
4. To make a hole, use the punch pliers 1 or similar tool.

Result The clothing fillet is prepared.

9.5.9.2 Attaching the Clothing Fillet to the Clearer Roller

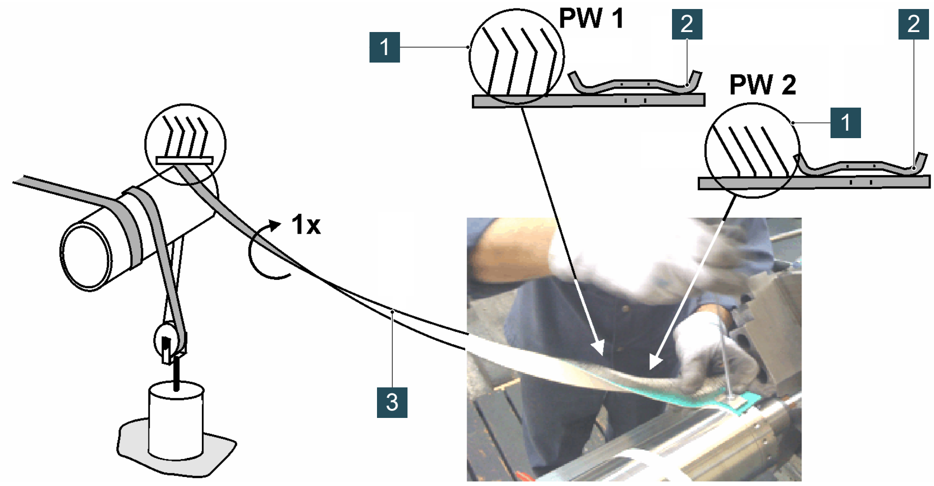


Figure 515: Clothing band

Prerequisites Make sure that the criteria are obeyed:

- ✓ Tightening torque to be applied for the clamping piece is 4 Nm.

1. Pull in the clothing band 3 as shown in the graphic.
   - ⇨ The needles are aligned as shown in the position. 1.
   - ⇨ The clothing band 3 is twisted one time.
2. Attach the start of the clothing band 3 with the clamp piece 2.
   - ⇨ The needles shown in the position 1 are pointed up.
   - ⇨ The clamp piece 2 is on all clamp points.

Result The clothing fillet is attached to the clearer roller.

9.5.9.3 Winding the Clothing Fillet onto the Clearer Roller

Prerequisites Make sure that the criteria are obeyed:

- ✓ 2 persons are necessary for the work.
- ✓ A scriber is to be used.
- ✓ Necessary speed of the rollers for winding is 5 – 10 rpm.
- ✓ Tightening torque to be applied for the clamping piece is 4 Nm.

1. When the roller 3 turns, lightly guide the clothing band 2 as shown in the graphic.

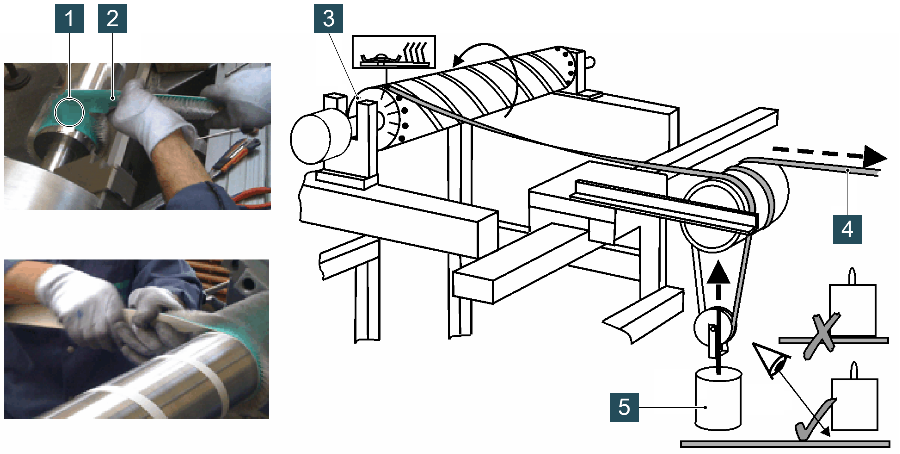


Figure 516: Clothing band 3

2. Make sure that the weight 5 is on the floor before switching on.
3. Switch on the drive.
4. Hold back the clothing band 4 to lift the weight 5 from the floor.
5. Make sure that the windings 1 are near each other and not overlap.

Fastening the Clothing Band on the End

1. Stop the drive on the end of the roller.
2. Make sure to keep the clothing band tensioned until the clothing band is fastened.
3. To select the suitable tapped bore for the fastening of the clamp piece 9, use the marking 7.

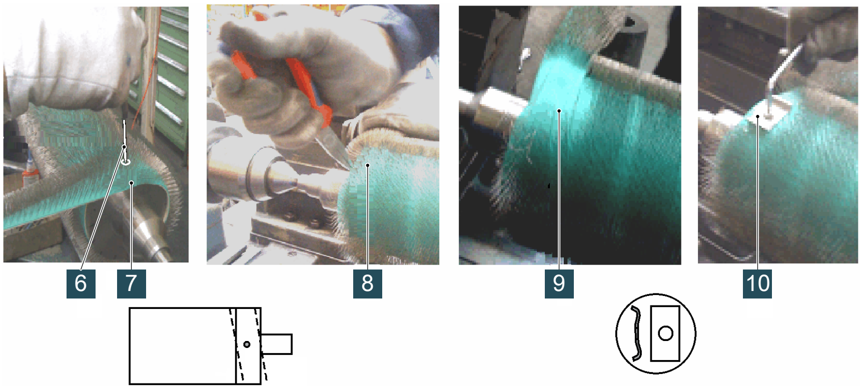


Figure 517: Clothing band on the end

4. To put the clothing band in the area of the tapped bore, use scriber 6.
5. At the puncture, screw in the thread cutter.

   ⇨ The puncture is widened.
6. Make sure to pull the needles 8 out of the clothing band until the sufficient area is available for the attaching of the clamp piece 9.

7. To fasten the clamp piece 9, use the screw 10.
8. Make sure that the clamp piece 9 is on all clamp points.
9. Cut the clothing band behind the clamp piece 9.
   ⇨ The clothing band is fastened on the end.

Result The clothing fillet is wound up.

9.5.9.4 Attaching a Second Clamping Piece

Prerequisites Make sure that the criteria are obeyed:

✓ A scriber is to be used.
✓ Tightening torque to be applied for the clamping piece is 4 Nm.

1. To select the suitable tapped bore for the attaching of the clamp piece 1, use the marking 3.

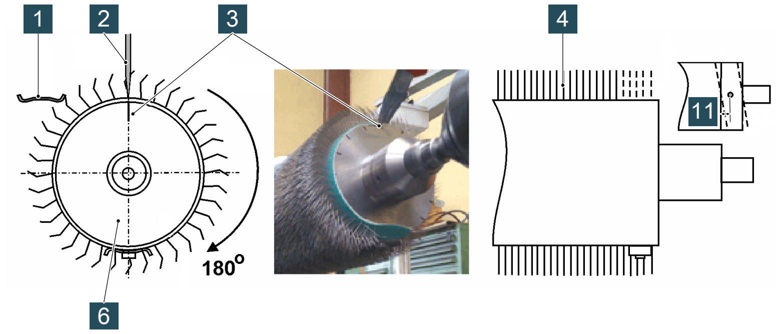


Figure 518: Attaching the Second piece

2. Turn the roller 6 to 180°.
3. To put the clothing band in the area of the tapped bore, use the scriber 2.
4. At the puncture, screw in the thread cutter.
   ⇨ The puncture is widened.
5. Make sure to pull the needles 4 out of the clothing band until the sufficient area is available for the attaching of the clamp piece 1.
6. To attach the clamp piece 1, use the screw.
7. Callout number 11 given in source but not mentioned in source content.
8. Make sure that the clamp piece 1 is on all clamp points.
9. Cut off the clothing band behind the clamp piece 1.

Result The second clamp piece is attached.

9.5.9.5 Cutting the Clothing Fillet at the Edge of the Clearer Roller

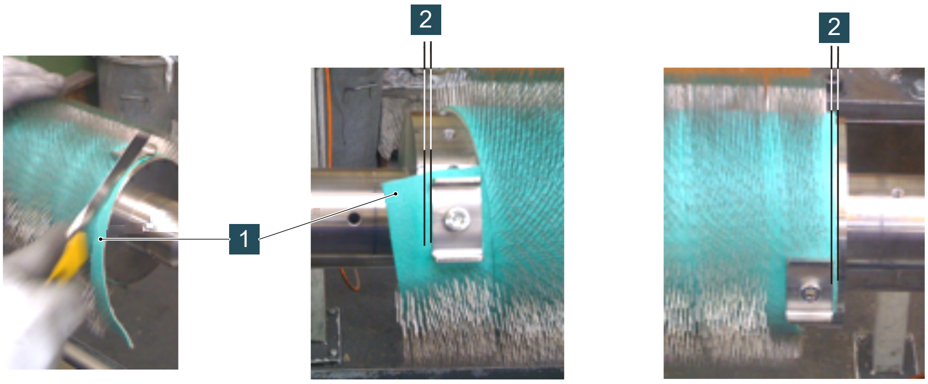


Figure 519: Edge of the roller

Prerequisites Make sure that the criteria are obeyed:

- ✓ A sharp knife is to be used.

1. Remove the needles on the 2 sides.
2. Remove the needles on the edge of the roller.
3. Remove the needles on the all perimeter.
4. To cut the projecting clothing fillet 1, use the sharp knife.
5. Make sure that the distance 2 from the cut to the clamp piece is 2 mm.

Result The clothing fillet is cut at the edge.

9.6 Doffer

This section contains the information about how to repair the doffer.

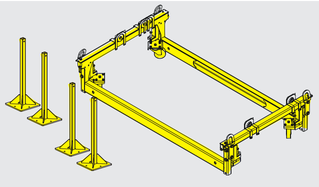
9.6.1 Replacing the Doffer Unit

Orientation This section contains the information about how to replace the doffer unit.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.

Removing the Doffer Unit

	Transport trolley	The transport trolley is used to move the licker-in unit and the doffer unit.

Prerequisites Make sure that the criteria are obeyed:

- ✓ A transport trolley is to be used.

1. Remove the cover above the delivery crossbar, the front covers in the substructure, and the cover of the delivery shield.

2. Remove the connecting pipe 2 of the suction system on the right side of the machine.

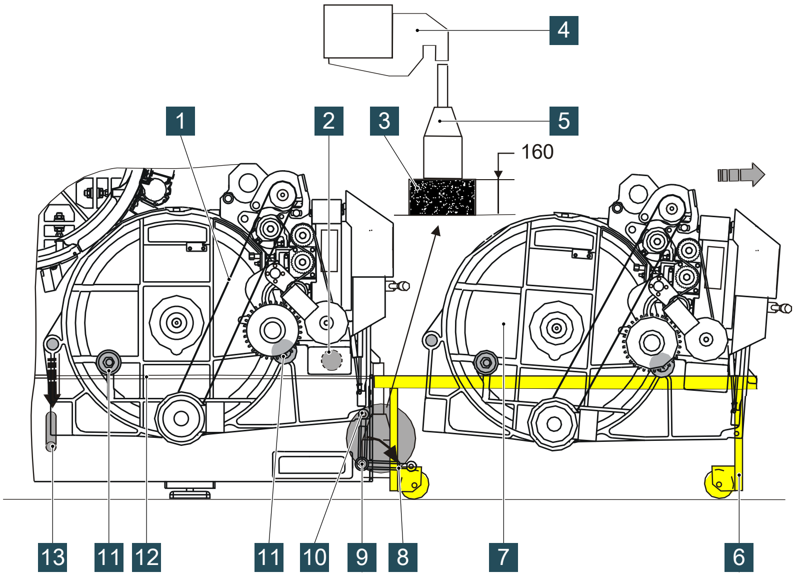


Figure 520: Doffer unit

3. Disconnect all cables and all pneumatic lines that are connected to the doffer unit.
4. Remove the cables of the proximity switch and the cables of the measuring device.
5. Disconnect the compressed-air supply from the blowing device.
6. To prevent damage when the doffer unit is removed, put the cables and plugs in the duct 7.
7. Remove the drive belt 1 of the clearer roller.
8. Remove the drive belts of the delivery rollers and the disk rollers.
9. Put the hydraulic lift 5 on the wooden block 3 that has a height of 160 mm.
10. Align the hydraulic lift 5 correctly below the support 4.
11. Lift the hydraulic lift 5 to 1 mm below the support 4.
12. Turn the nuts 10 counterclockwise on the 2 sides.

    ⇨ The doffer unit 7 moves down until the support 4 touches the hydraulic lift 5.
13. Remove the dowel screw 9.
14. Move away the spindles 8.
15. Move down the doffer unit 7 with hydraulic lift 5 until the transport rolls 11 touch the machine frame 12.
16. Put the transport trolley 6 in front of the machine.
17. Align the transport trolley 6 to the height of the machine frame 12.

18. Remove the shear bolts 13.
19. Push the doffer unit 7 onto the transport trolley 6.
20. Safety the doffer unit 7 with the screws.

   ⇨ The doffer unit is removed from the machine.

Installing the Doffer Unit

1. Put the transport trolley 6 in front of the machine.
2. Align the transport trolley 6 to the height of the machine frame 12.
3. Remove the screws from the doffer unit 7 that is on the transport trolley 6.
4. Push the doffer unit 7 to the machine frame 12.
5. Install the shear bolts 13 lubricated with assembly paste into the holes by hand. Do not use hammer to put in the shear bolts 13.
6. Move down the doffer unit 7 to the correct position with the hydraulic lift 5.
7. Move in the spindles 8.
8. Install the dowel screw 9 with assembly paste and fix.
9. Turn the nuts 10 clockwise on the 2 sides.
10. Install all removed parts.
11. Connect the compressed-air supply to the blowing device.

   ⇨ The doffer unit is installed.

Result The doffer unit is replaced.

9.7 Delivery Unit

This section contains the information about how to repair the delivery unit.

9.7.1 Replacing the Rollers

Orientation The rollers at the delivery unit must be replaced with almost the same procedure.

The rollers 3, 4, 5, 6, and 7 are turned. The side parts of the rollers are installed in position by the bearing journals.

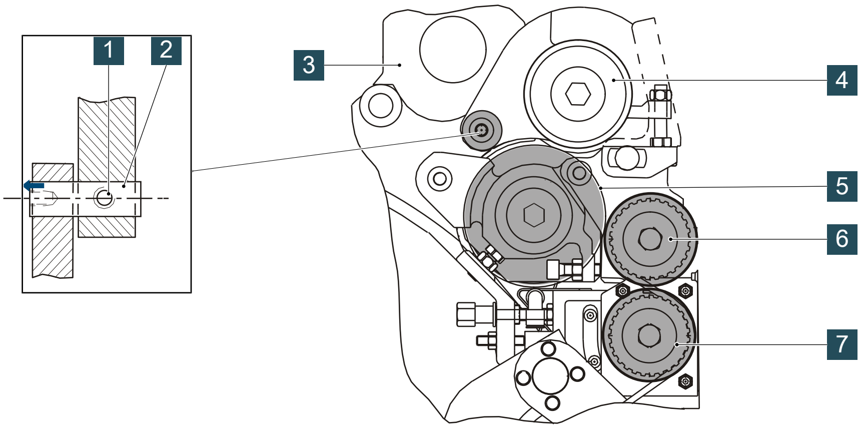
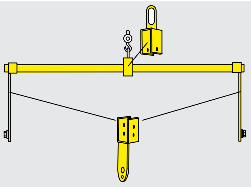


Figure 521: Rollers

	Lifting device	The lifting device is used to lift the rollers and the licker-in unit.

Prerequisites Make sure that the criteria are obeyed:

✓ A lifting device is to be used.

Removing the Rollers

1. Remove the parts until the machine rollers from 3, 4, 5, 6, and 7 are open for the access.
2. Loosen the safety stud bolt 1 by 2 mm.
3. Attach the straps 9 of the lifting device 8 to 1 of the rollers.

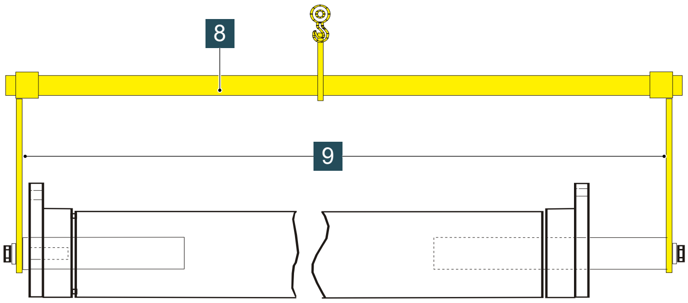


Figure 522: Lifting device and the delivery roller

4. Carefully lift the lifting device 8 at a small distance.
5. Remove the bearing pin 2 from the holes.
6. Remove the roller with the lifting device 8.
7. Do the same procedure for other rollers 3, 4, 5, 6, and 7.

⇨ The rollers are removed.

Installing the Rollers

1. Attach the lifting device to the roller.
2. Put the roller at the correct position with the lifting device.
3. Adjust the roller correctly.
4. Apply the assembly paste on the bearing pin 2.
5. Install the bearing pin 2.
6. Tighten the safety stud bolt 1 by 2 mm.
7. Install all removed parts again.
8. Do the same procedure for the other rollers 3, 4, 5, 6, and 7.

   ⇨ The rollers are installed.

Result The rollers are replaced.

9.7.2 Replacing the Cross Apron

Orientation This section contains the information about how to replace the cross apron.

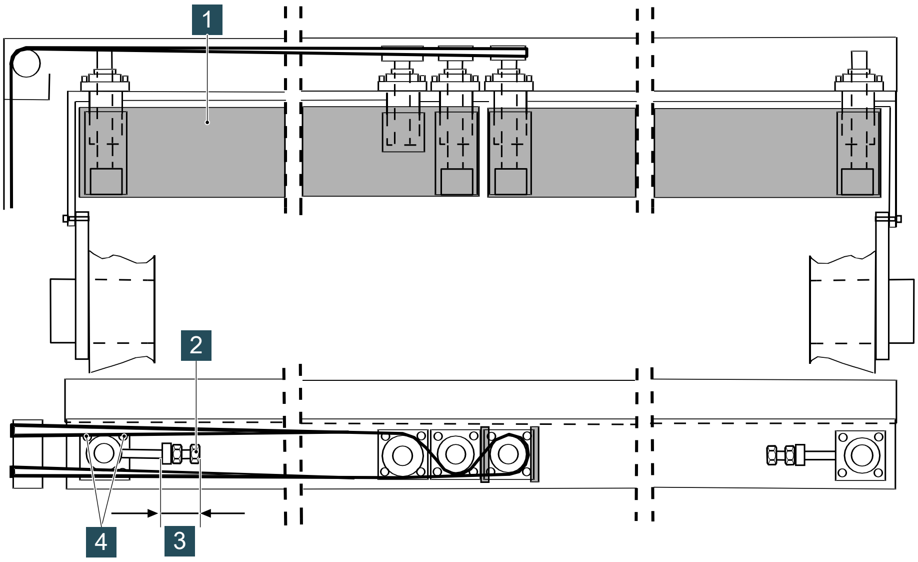


Figure 523: Mark cross apron

Removing the Cross Apron

1. Release the tension of the cross apron with the screws 2 and 4.
2. Remove the cross apron 1.

   ⇨ The cross apron is removed.

Installing the Cross Apron

1. Put a mark of 2 lines on the new cross apron 1.
2. Make sure that the distance 3 between the marks of 2 lines is 500 mm.
3. Install the mark cross apron 1.

4. To apply the tension to the cross apron 1, use the screw 2.
5. Make sure that the distance 3 between the 2 lines of the applied tension on the cross apron is 505 mm.
6. Make sure that the distance 3 between the 2 lines of the applied tension on the cross apron is 502 mm.
   - ⇨ The necessary distance between the lines is reached.
7. Tighten the screw 4.
   - ⇨ The tension to the cross apron is applied.
   - ⇨ The cross apron is installed.

Result The cross apron is replaced.

9.7.3 Replacing the Distance Measuring Device

Orientation This section contains the information about how to replace the distance measuring device.

Removing the Distance Measuring Device

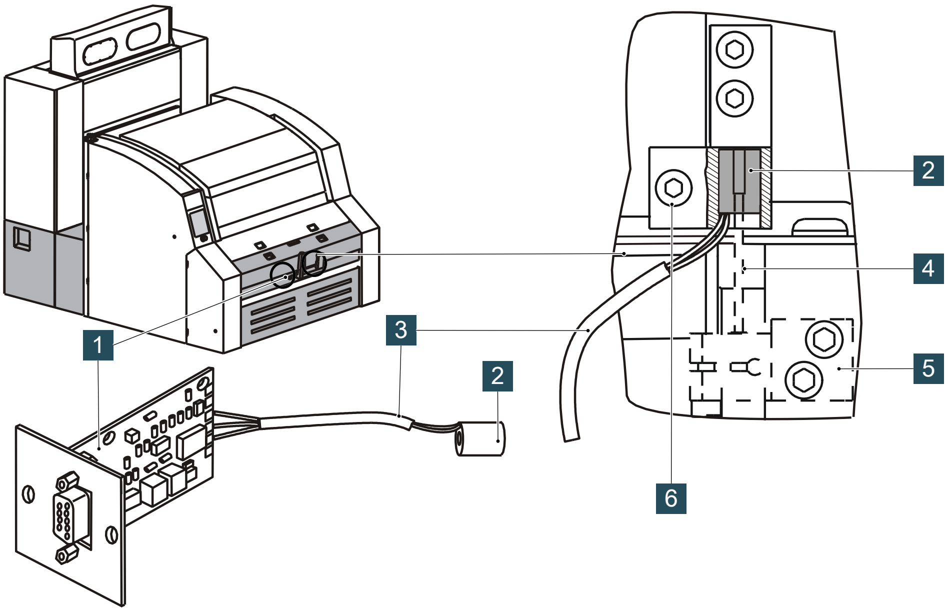


Figure 524: Distance measurement device

1. Remove the holder 5 with the plunger 4.
2. Loosen the screw 6.
3. Remove the plunger coil 2.
4. Make sure that the cable 3 has no damage.
5. To remove the measurement converter 1, use the connected plunger coil 2.
   - ⇨ The distance measuring device is removed.

Installing the Distance Measuring Device

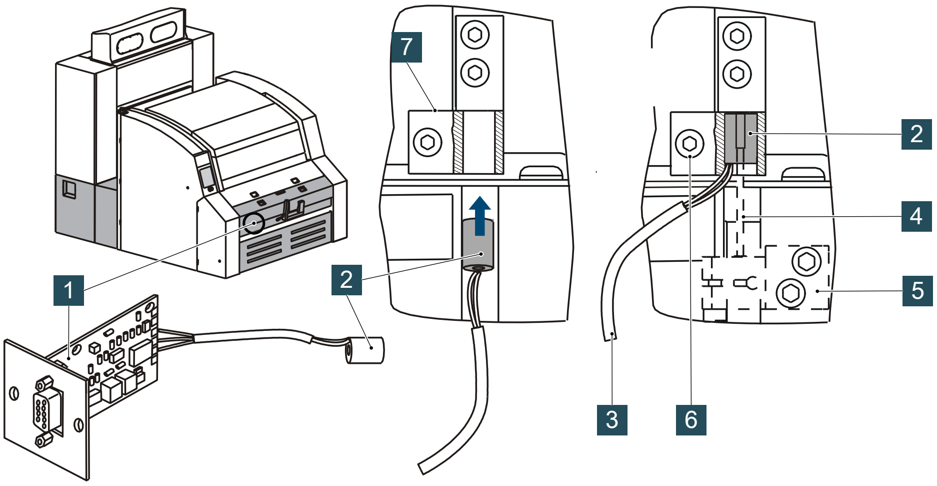


Figure 525: Distance measurement device

1. To install the distance measuring device 1, use the connecting plunger coil 2.
2. Put the plunger coil 2 in the bore 7 of the holder 5.
3. Make sure that the plunger coil 2 is flush with the holder 5 at the bottom.
4. Make sure that the cable 3 has no damage.
5. Make sure that the cable connection is at the bottom in the installed status.
6. Tighten the screw 6 with a tightening torque of 2 Nm.
7. Attach the holder 5 to the solenoid plunger 4.
8. Adjust the plunger 4 in the plunger coil 2. See *Adjusting the Plunger in the Plunger Coil* ▸ *299*

   ⇨ The distance measuring device is installed.

Result The distance measuring device is replaced.

9.8 Sliver Coiling Device CBA

This section contains the information about how to repair the sliver coiling device CBA.

9.8.1 Replacing the Can Trolley

Orientation This section contains the information about how to replace the can trolley.

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

Removing the Can Trolley

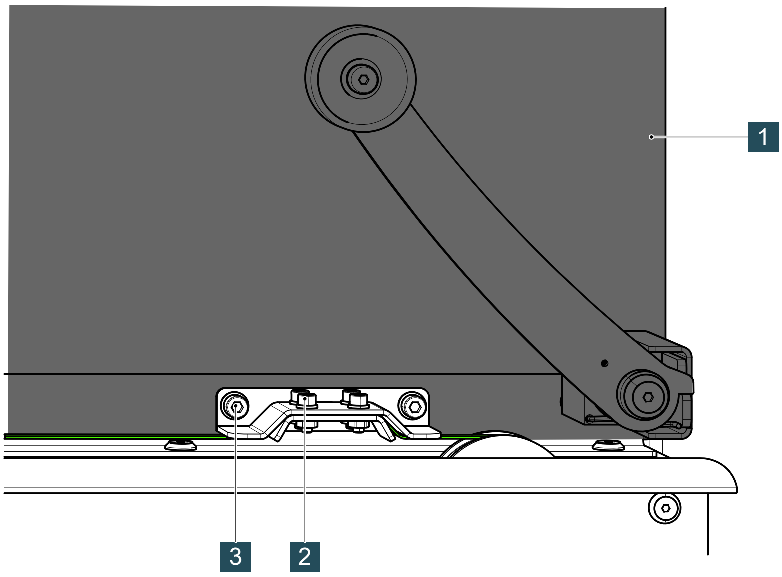


Figure 526: Can trolley

1. Remove the screw 3.
2. Do not remove the screws 2.
3. Remove the can trolley 1.

   ⇨ The can trolley is removed.

Installing the Can Trolley

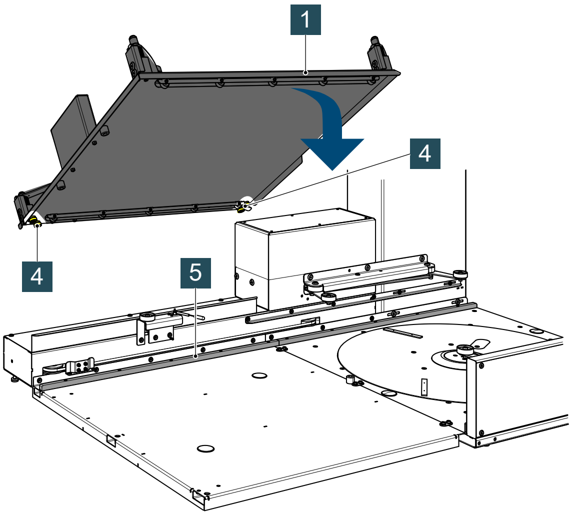


Figure 527: Can trolley with the guide rails

1. Make sure that the guide rails 4 are on the same side as the guide rail 5 on the base plate.
2. Put the can trolley 1 onto the floor plate.

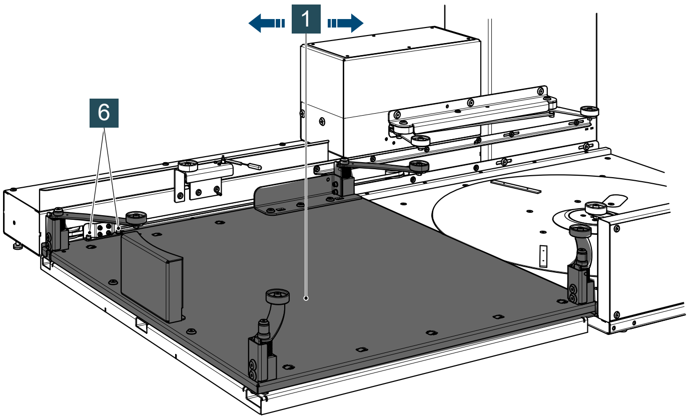


Figure 528: Position of the can trolley

3. Make sure that the can trolley moves forward and backward.
   ⇨ The can trolley moves forward and backward correctly.
4. Attach the drive plate with the screws 6 to the can trolley 1.
   ⇨ The can trolley is installed.

Result The can trolley is replaced.

9.8.2 Installing the Drive Belt on the Can Trolley

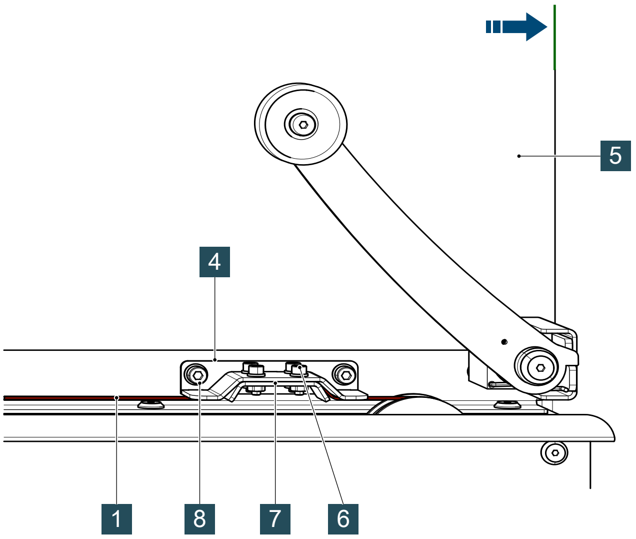


Figure 529: Drive belt for the can trolley

1. Align the can trolley 5 to the rear end position.
2. Install the drive plate 4 with the screws 8 on the can trolley 5.
3. Put the drive belt 1 between the drive plate 4 and the counterpart 7.
4. Tighten the screws 6.

Applying Tension to the Drive Belt (CD 600 mm)

1. Pull in the drive belt 1.

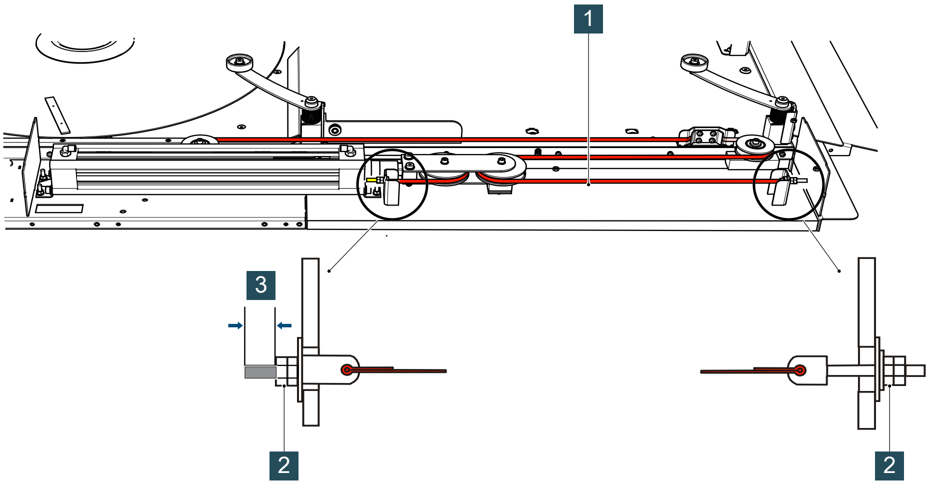


Figure 530: Drive belt for the can trolley

2. Make sure that the nuts 2 hold the drive belt 1 in the correct position.
3. Apply tension to the drive belt 1 with the hand.
4. Tighten the nuts 2 at the drive belt 1.
   ⇨ The primary position of the drive belt 1 for the tensioning procedure is set.
5. Measure the distance 3.
6. To apply tension to the drive belt 1, use the nuts 2.
7. To set the distance 3 to 12 mm, use the nuts 2.
   ⇨ The tension is applied to the drive belt for the can trolley.

Applying Tension to the Drive Belt (CD 750, 800, 1000 mm)

1. Pull in the drive belt 1.

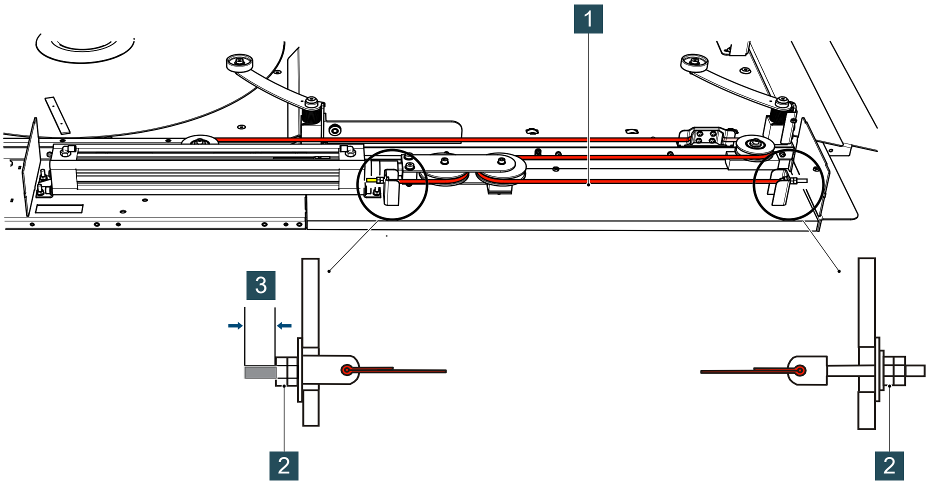


Figure 531: Drive belt for the can trolley

2. Make sure that the nuts 2 hold the drive belt 1 in the correct position.
3. Apply the tension to the drive belt 1 with the hand.
4. Tighten the nuts 2 at the drive belt 1.

   ⇨ The primary position of the drive belt 1 for the tensioning procedure is set.

5. Measure the distance 3.
6. To apply the tension to the drive belt 1, use the nuts 2.
7. To set the distance 3 to 12 mm, use the nuts 2.

   ⇨ The tension is applied to the drive belt for the can trolley.

Result The drive belt is installed on the can trolley.

9.8.3 Tightening the Can Changer Belt (CBA 1200)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. To remove the cover 3, remove the screws 1 and 2 at the cover 3.

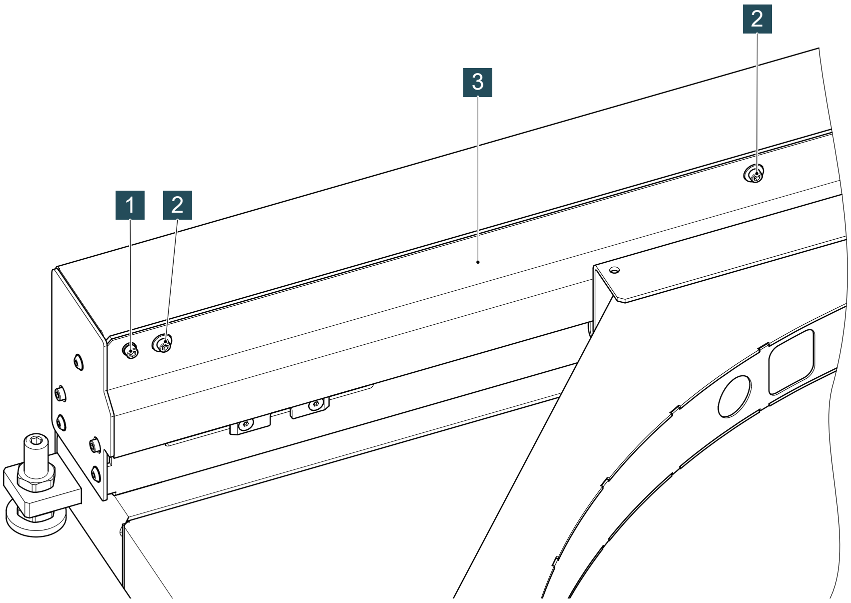


Figure 532: Can changer

2. Loosen the 4 screws 7 at the 2 sides of the can changer.

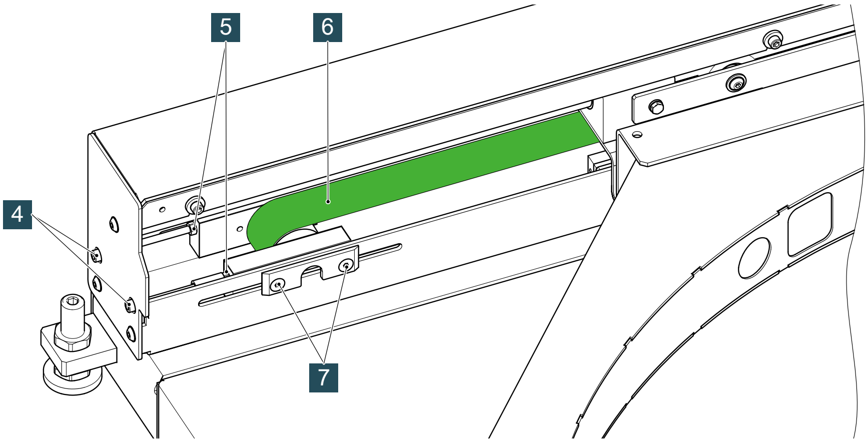


Figure 533: Can changer belt

3. Loosen the 2 nuts 5.
4. To tighten the belt 6, turn the screws 4 clockwise at the same time.
5. Tighten the 2 nuts 5.
6. Tighten the 4 screws 7 at the 2 sides of the can changer.
7. Install the cover 3 with the removed screws 1 and 2.

Result The can changer belt is tightened.

9.8.4 Replacing the Coiler (CBA 1200)

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

CAUTION

Falling coiler!

Danger of injury if the coiler falls

▶ 2 personnel are necessary to hold the coiler.

Removing the Coiler

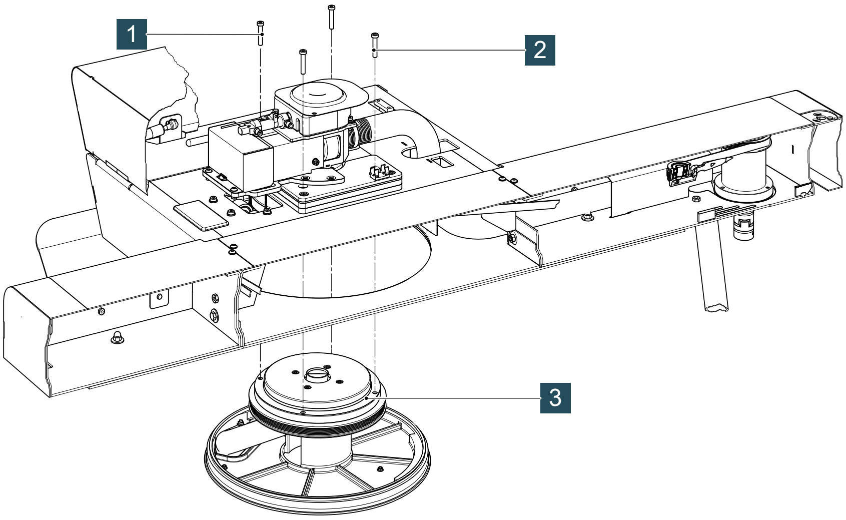


Figure 534: Coiler

1. **CAUTION! Falling coiler! Danger of injury if the coiler falls.** Remove the screw 1 from the tension plate.
2. Remove the screw 2 that is opposite of the screw 1.
3. Remove the remaining 2 screws from the tension plate.
4. Put a can that is not filled below the coiler.

   ⇨ The coiler can falls on the can.
5. Turn the coiler 3
6. Push down the coiler until the coiler falls on the can.

   ⇨ The coiler is removed.

Installing the Coiler

1. Hold the coiler 3 against the tension plate below.
2. Tighten the screw 1 at the tension plate.
3. Tighten the screw 2 that is opposite of the screw 1.
4. Tighten the remaining 2 screws at the tension plate.

   ⇨ The coiler is installed.

Result The coiler is replaced.

9.8.5 Replacing the Pulley (CBA 1200)

Orientation The production of coiler can be changed by the replacing the pulley.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Loosen the belt 1.

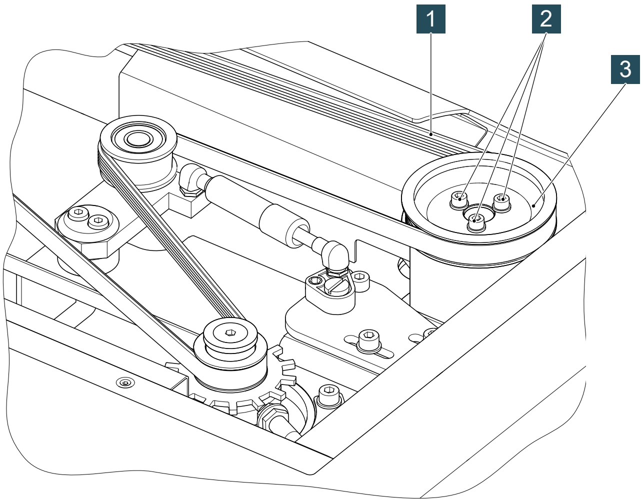


Figure 535: Pulley

2. Remove the 3 screws 2.
3. Remove the pulley 3.
4. Install a new pulley.
5. Install the 3 screws 2.
6. Tighten the belt 1.

Result The pulley is replaced.

9.9 Control System

This section contains the information about how to repair the control system.

9.9.1 Measuring the Voltage of the Intermediate Circuit

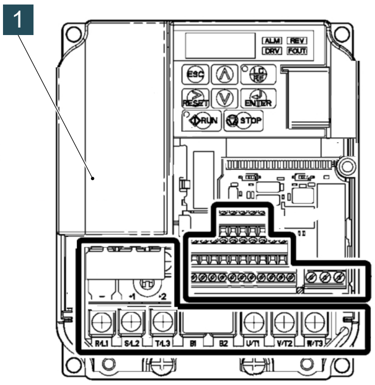


Figure 536: Frequency converter

1. Examine the operating state of the LED 1.
   - ⇨ If the LED 1 comes ON, the voltage in the intermediate circuit is more than the 50 V DC.
2. Wait until the LED 1 goes OFF.
   - ⇨ The LED 1 is located at a different place on the frequency converter depends on the version.
3. Measure the residual voltage between the terminals with the designations – and +1.
   - ⇨ These terminals may appear at different places among the set of power terminals depends on the version.
4. After the LED 1 goes OFF, stay away from the frequency converter for more 5 minutes.
5. Measure the residual voltage of the intermediate circuit between the terminals with the designations – and +1.
   - ⇨ The maximum residual voltage of the intermediate circuit is 30 V_{DC}.
6. Compare the measured residual voltage and the minimum residual voltage.
7. Do not operate the frequency converter until the measured residual voltage is less than the maximum residual voltage of the intermediate circuit.

Result The voltage of the intermediate circuit is measured.

9.9.2 Identification of the Frequency Converter

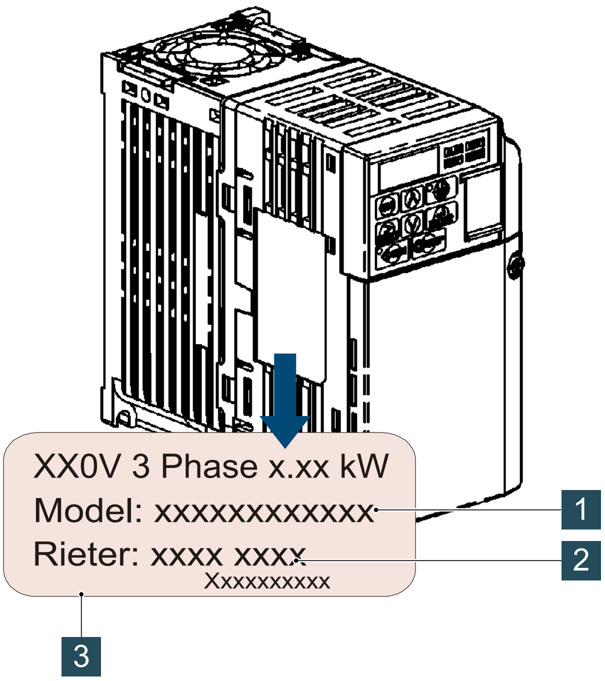


Figure 537: Identification of the frequency converter

The Rieter part number 2 on the attached label 3 must be same as the part number in the related electrical documentation.

The model identification 1 must be same with the identification on the manufacturer’s label that is on the side of the frequency converter.

9.9.3 Replacing the Frequency Converter

Orientation Replacing the frequency converter is done by the plant electricians.

DANGER

Remaining electricity in the frequency converter!

Death or dangerous burn injury through the electric shock

- Set the main switch to the position OFF. Padlock the main switch.
- Do **NOT** touch the device that has remaining electricity until the LED for the charge display is off.
- Wait for 10 min until the frequency converter voltage becomes 0 V.
- Do **NOT** touch the device during the discharge time.

Removing the Frequency Converter

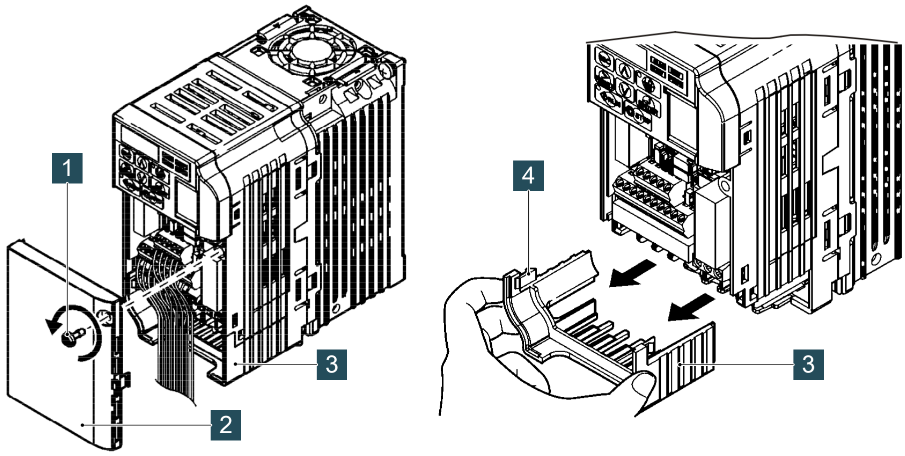


Figure 538: Removal of the cover from the power unit

1. The housing to be removed can deviate from the depicted housing.
2. Loosen the screw 1 and remove the cover 2.
3. Press the latches 4 of the cover 3 together.
4. Extend the cover 3 in the direction of the arrow.

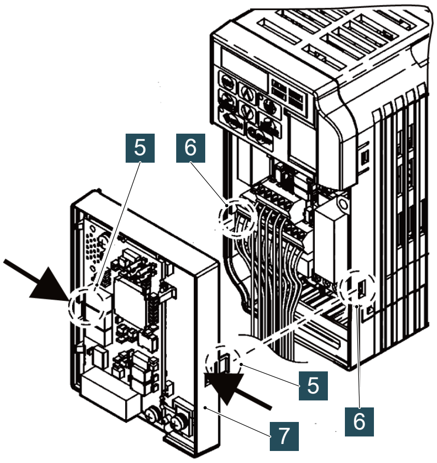


Figure 539: Frequency converter

5. Gently press together the latches 5 on the module 7.
   ⇨ The latches 5 disengage from the openings 6.
6. Remove the module 7.
7. Examine if the LED 8 is on.

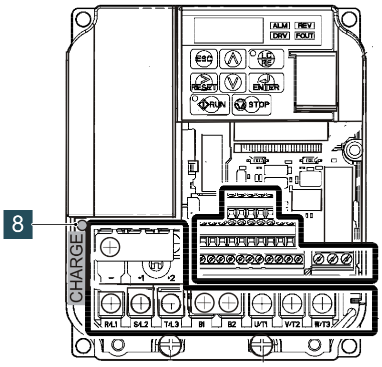


Figure 540: LED at the frequency converter

8. Check whether (CHARGE) LED lights up.
9. The LED will light up if the voltage for the intermediate circuit still exceeds 50 VDC.
10. Wait until the LED (CHARGE) has gone out.
11. After the LED (CHARGE) has gone out, wait 5 more minutes.
12. Measure the residual voltage between the terminals with the designations (-) and (+1) (intermediate circuit). Depending on, the terminals are arranged at different places of the power terminals.
13. If the residual voltage in the intermediate circuit has dropped below 30 VDC, disconnect the cables.

Disconnecting Cable

1. Check the labelling of terminals and cables. Ensure that the cables can be properly connected during reinstallation.
2. Disconnect the power and control terminals.
3. Disconnect the earth cable from the earth terminal.
4. Do not pull the cables out of the cable bushings. The cable glands remain in the electrical control cabinet of the machine when the frequency converter is replaced.
5. Loosen the four fastening screws. Remove the frequency converter.

Installing the Frequency Converter

1. Push the detent pawls 5 on the 2 sides of the module 7.

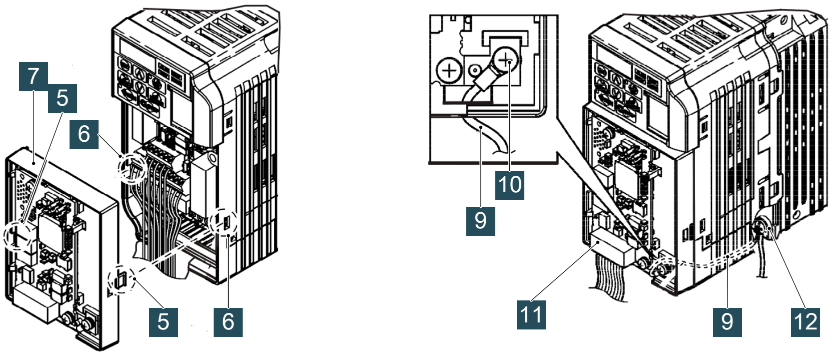


Figure 541: Frequency converter

2. Push the module 7 until the pawls 5 lock into position in the notch 6.
3. Connect the ground cable 9 to the ground terminal 10 of the CAN module.
4. Connect the other end of ground cable 9 to the ground terminal 12 of the frequency converter.
5. Keep the ground cable 9 from the CAN module to the frequency converter as short as possible.
6. Put the connector 11 of the CAN bus cable.
7. Install the cover 2.

   ⇨ The frequency converter is installed.

Result The frequency converter is replaced.

9.9.4 Installing the Cooling System to the Frequency Converter

Orientation This section contains the information about how to install the cooling system of the frequency converter.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- ✓ The frequency converter is removed.
- ✓ The spatula is to be used.

1. To remove the heat transfer compound that is on the heat transfer plates, use a spatula.
2. To remove the dust from the heat transfer plates, use a solvent.
3. Examine if the heat transfer plates are damaged.
4. If a heat transfer plate has unevenness, do the grinding of the heat transfer plate.
5. To apply the heat transfer compound equally to the heat transfer plate, use a paint roller.
6. Install the cooling plate.

Result The cooling system is installed to the frequency converter.

9.9.5 Setting the DIP Switches

Orientation The frequency converter is set with the switches S1 to S4 on the controller card.

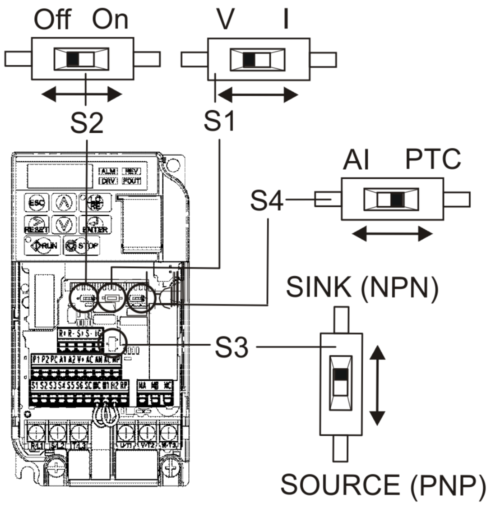


Figure 542: DIP switches of the frequency converter

Frequency converter	S1	S2	S3	S4
U10	I	On	SINK (NPN)	AI
U11	I	On	SINK (NPN)	AI
U12	I	On	SINK (NPN)	AI
U13	I	On	SINK (NPN)	AI
U41	I	On	SINK (NPN)	AI
U50	I	On	SINK (NPN)	AI

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- ✓ The work is done by the plant electricians.

DANGER

Parts under power!

Death or dangerous injury because of electric shock

- ▶ Set the main switch to the position OFF and padlock the main switch.
- ▶ Make sure that the only approved electrician does the maintenance work or repair work at the frequency converter.
- ▶ Wait for 10 min after the frequency converter voltage becomes 0 V.
- ▶ Do NOT touch the frequency converter during the discharge time of the capacitor.

1. Set the switch S1 to the position I.

2. Set the switch S2 to the position On.
3. Set the switch S3 to the position SINK (NPN).
4. Set the switch S4 to the position AI.
5. Do the function test of the safety relay. See *Doing the Function Test of the Safety Relay ▸ 172*.

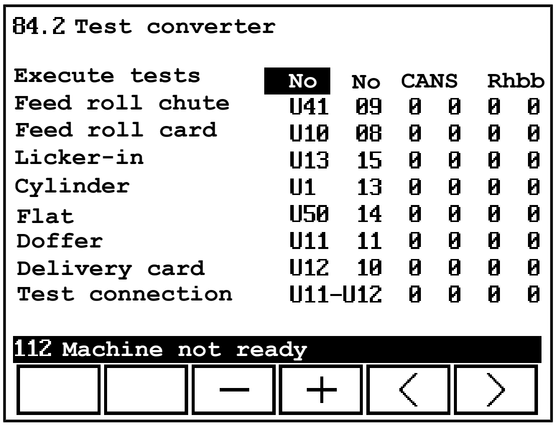
Result The DIP switches are set.

9.9.6 Charging the Replacement Frequency Converters

The replacement frequency converters held in storage must be connected to a mains supply for at least one hour every six months. This allows the internal components to regenerate themselves.

The replacement equipment can be put into service at any time.

9.9.7 Giving the Parameters for the Frequency Converter T1000V



```
84.2 Test converter

Execute tests         No   No  CANS   Rhbb
Feed roll chute       U41  09  0   0  0   0
Feed roll card        U10  08  0   0  0   0
Licker-in             U13  15  0   0  0   0
Cylinder              U1   13  0   0  0   0
Flat                  U50  14  0   0  0   0
Doffer                U11  11  0   0  0   0
Delivery card         U12  10  0   0  0   0
Test connection       U11-U12  0   0  0   0

112 Machine not ready
```

Figure 543: Data Screen 84.2 ***Test converter***

1. Select the password level 2.
2. Select the operating mode **Test mode**, in the data screen 80.1 **Operating mode switchover** .
3. Select the data screen 84.2 **Test converter** .
4. In the line **Execute tests** select **Yes**.

   ⇨ The test is started.
5. Select the correct frequency converter.
6. Select the inverter for the test with the forward cursor button.

   ⇨ The line with the selected inverter is highlighted.
7. Push the plus button to start the test.

   ⇨ The message **Establishing connec. to converter...** is shown.
8. Push the start key.

⇨ The selected frequency converter is supplied with power.

Setting the Authorisation

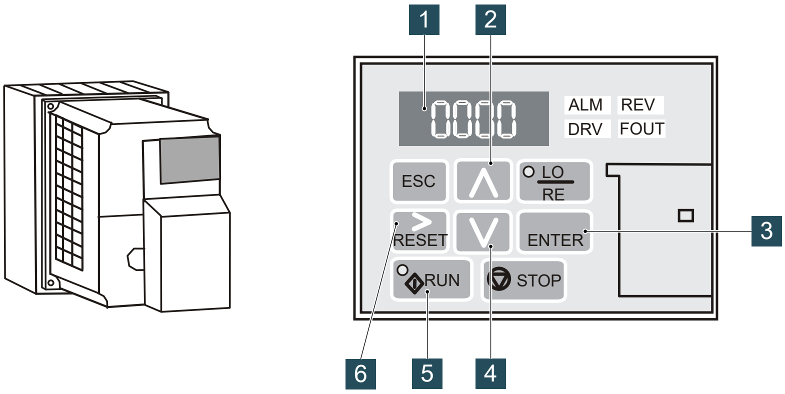


Figure 544: The authorization setting

1. Push the buttons up 2 and down 4.

   ⇨ PAr is shown.

2. Push the button enter 3.

   ⇨ A1-01 flashes.

3. Do not start with the button enter 3.

   ⇨ XXXX is shown.

4. Push the button 6 to move from number to number.

   ⇨ The number that can be edited is flashes.

5. Set the parameter values 0 002 with the buttons 2 and 4.
6. Save with the button 3.

   ⇨ First End is shown, then the parameter value 0 002.

   ⇨ A1-01 flashes.

   ⇨ The authorization to change any parameter value is done.

Initializations

1. Set the parameter A1-03 with the button 2.
2. Save the parameter with the button 3.

   ⇨ XXXX is shown.

3. Push the button 6 to move from number to number.

   ⇨ The number that can be edited is flashes.

4. Set the parameter values 2 220 with the buttons 2 and 4.
5. Save with the button 3.

   ⇨ First End is shown, then the parameter value 2 220.

⇨ A1-03 flashes.

6. The initialization is done.

Setting the Baud Rate

1. Set the parameter F6-36 with the button 2.
2. Save the parameter with the button 3.

   ⇨ XX is shown.

3. Push the button 6 to move from number to number.

   ⇨ The number that can be edited is flashes.

4. Set the parameter values 00 with the buttons 2 and 4.
5. Save with the button 3.

   ⇨ First End is shown, then the parameter value 00.

   ⇨ F6-36 flashes.

   ⇨ The baud rate is searched automatically.

6. The baud rate is set.

Setting the Node Address

1. Select the node address for the correct frequency converter.
2. The node address is specified in the documentation for the electrical system.
3. Set the parameter F6-35 with the button 2.
4. Save the parameter with the button 3.

   ⇨ XX is shown.

5. Push the button 6 to move from number to number.

   ⇨ The number that can be edited is flashes.

6. Set the node address, for example 09 with the buttons 2 and 4.
7. Save with the button 3.

   ⇨ First End is shown, then the node address, for example 09.

   ⇨ F6-35 flashes.

   ⇨ The frequency converter parameters are given.

8. After the node address is set, select the **Automatic mode** in the data screen 80.1 **Operating mode switchover**

   ⇨ The machine is prepared for operation.

   ⇨ The message **Ready to start** is shown.

   ⇨ The node address is set.

Result The Parameters for the Frequency Converter T1000V are given.

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10 Decommissioning and Storage

This chapter contains the information about the decommissioning, the storage of the machine and the correct preventive maintenance.

10.1 Decommissioning

The decommissioning work is done if the machine:

- Is to be moved to a different location
- Does not operate
- Is ready to be discarded

These decommissioning works are to be done:

- The fiber material is removed from the machine.
- The machine temperature is decreased to the ambient temperature.
- The main switch is set to the position OFF.
- The power supply to the machine is disconnected.
- The compressed-air supply is disconnected.
- No tension is applied to the toothed belts, the flat belts, or the V-ribbed belts.

10.1.1 About the Operating Fluids

All operating fluids are to be removed from the machine. The local laws and regulations are to be obeyed for the storage or the disposal of all operating fluids.

10.1.2 Cleaning the Machine

Make sure that the machine is cleaned before the decommissioning. For more information about how to clean the machine, please refer to chapter “Maintenance” of this manual.

10.1.3 Temporary Decommissioning

Measures must be taken for safeguarding, corrosion protection and storage.

Use the following check list to de-commission the machine for a specific period of time.

The objective is: Safe storage during standstill.

Follow the steps to decommission the machine temporary:

- Put the machine back to its initial position.
- Disconnect the power supply from the machine.
- Loosen the drive belts.
- Keep the machine in a clean and dry room to prevent from contamination and corrosion.

- Do not misuse the machine.

10.1.4 Final Decommissioning

Obey the instruction of the local authorities for final decommission of the machine.

The machine disposal includes:

- Re-usability
- Recycling
- Waste disposal

The operating materials of the machine that follow must be correctly disposed referring to the local environmental laws and regulations:

- Oils
- Greases
- Batteries

10.2 Storage

The steps to keep the machine safe are as follows:

- To prevent from contamination or corrosion, keep the machine in a clean and dry room.
- Make sure that no unauthorized operation occurs at the machine.
- Make sure that the machine has no risks of injury to personnel.

11 Disposal of the Machine

This chapter contains the information about the disposal of the machine after the service life end of the machine. When the machine becomes discarded, the applicable national and regional laws and directives are to be obeyed.

11.1 Owner or Operator Responsibility

The machine owner or the operator is responsible for the disposal of the machine.

For the disposal of the assemblies that were not made by Rieter, the related instructions that are given in the supplier documentation are to be obeyed.

11.2 Safety Regulations

⚠ **WARNING**

Falling machine components!

Dangerous injuries by crushing of body parts

- ▶ Do NOT lift heavy components manually.
- ▶ Always use a safe and applicable lifting device.

11.3 Discarding the Machine

When the machine becomes discarded, the applicable national and regional laws and directives are to be obeyed.

11.4 Materials

The user must divide materials in relation to the material group and give the machine parts to the correct collection point:

- Steel
- Copper
- Brass
- Rubber
- Electronic waste
- Cast iron
- Glass
- Plastics
- Liquid materials
- Hazardous waste

11.5 Notice to the Manufacturer and the Authorities

Before the machine becomes discarded, the user must tell the related disposal authorities and the government agencies.

Tell the machine manufacturer – Rieter – about the disposal of the machine.

E-mail: info@rieter.com

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